

Robin Mansell and Nick Couldry

A Commonwealth action programme for the digital divide: report of the Commonwealth Expert Group on Information Technology for the Commonwealth High Level Review Group

Report

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DRAFT

A Commonwealth Action Programme for the Digital Divide

**Report of the
Commonwealth Expert Group on Information Technology
for the Commonwealth High Level Review Group**

20 June 2001

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PREFACE

This Report of the Commonwealth Expert Group on Information Technology is structured in two parts: The first part comprises the **Summary Report** which provides our overall conclusions and recommendations for a Commonwealth Action Programme for the Digital Divide. The second part presents our larger Report which identifies and discusses the key issues of information and communications technologies and how they could be used as a tool for development in the Commonwealth, and how the Commonwealth might address the growing digital divide.

Chapter 1 examines the opportunities and constraints to the use of ICTs for strengthening democratic values and institutions and for promoting sustainable development. It looks at the situation globally and in the Commonwealth countries. **Chapter 2** examines the main priorities for action to reduce the digital divide and to take advantage of digital opportunities. The chapter focuses on policy considerations and on who is best positioned to take action.

Chapter 3 outlines features of a co-operative approach to bridging the digital divide. The roles of government, the private sector and entrepreneurs, and civil society are highlighted. **Chapter 4** provides an overview of current ICT initiatives and programmes at the global level that are aimed at mobilising investment and partnerships. **Chapter 5** looks at the Commonwealth's distinctive role and its comparative advantages in tackling the digital divide. It highlights the Commonwealth's current activities that are helping to bridge the digital divide, and concludes the report by emphasising the importance and urgency of ensuring that every opportunity is taken to strengthen the contribution of ICT to development goals and priorities.

We wish to record our appreciation to the governments of Malta, South Africa and the United Kingdom for hosting our meetings. We also wish to thank the Commonwealth Secretariat who, with the assistance of Professor Robin Mansell and Dr. Nick Couldry, London School of Economics and Political Science, London, has helped prepare this Report.

Andile Ngcaba
South Africa

Michael Moynihan
Australia

S R Das
India

Henry Alamango
Malta

Theo Mlaki
United Republic of Tanzania

Kenwyn Austin
Trinidad and Tobago

Anson Chua Choo Ann
Singapore

Russell Southwood
United Kingdom

Fortune Mhlanga
Zimbabwe

Richard Simpson
Commonwealth
Secretary-General's Nominee

A COMMONWEALTH ACTION PROGRAMME FOR THE DIGITAL DIVIDE: SUMMARY REPORT

Background

1. The networks created by advanced information and communication technologies (ICTs) hold a revolutionary potential for strengthening democratic values and institutions, promoting sustainable development, and for the way governments can interact with citizens. These technologies are fast becoming an engine supporting more equitable growth, good governance and empowerment of the individual. But the benefits are limited by uneven levels of access to technology, applications and skills, which is creating a digital divide between and within countries. Several global initiatives, including the G-8 Digital Opportunities and the United Nations Secretary-General's Task Forces, are underway to address the divide and to take advantage of new digital opportunities.
2. In September 2000 the Commonwealth Heads of Government of the High Level Review Group (HLG) moved to tackle the problem of the digital divide by establishing an Expert Group on Information Technology. The Group was asked to:
 - examine the constraints preventing the wider adoption of ICT in developing countries and possible ways of overcoming them, and
 - identify the objectives, which may include the strengthening of existing institutions active in this area, and activities, possibly undertaken in synergy with the UN, the G-8, other intergovernmental institutions and the private sector, of a proposed Commonwealth mechanism which could promote the wider use of ICT in Commonwealth countries, particularly in small states and developing countries.
3. The Group was chaired by Mr. Andile Ngcaba, Director-General, Department of Communications, South Africa (Membership of the Group is attached at Annex A). The Group met three times and drew upon evidence provided by representatives of Commonwealth Agencies, the public and private sectors and non-governmental organisations and commissioned reports. Our Report has been prepared for consideration at the HLG meeting in July 2001.
4. We believe that the digital divide is a multi-faceted and growing phenomenon that exists at many levels. The Commonwealth can significantly influence the uneven spread of ICTs by taking strategic action itself and by facilitating strategic action by others, including governments, other development agencies, the private sector, and especially entrepreneurs, and civil society.

Commonwealth's Strengths

5. We are convinced that the Commonwealth can significantly influence actions to bridge the digital divide. This conviction is rooted in the strengths of the association which lie in its deep commitment to democracy, good governance and sustainable development; and in its capacity to share experience and expertise in a trusted environment between countries and across various ICT environments (especially in the least developed and small, and small island, states). It has a tradition of caring for each other.
6. The Commonwealth is more than its intergovernmental relations and institutions. It has a shared inheritance in language (English), institutions (e.g. legal and governmental structures), and the rule of law. These, together with its well-established network of institutional, business, civil and people-to-people links, bind the Commonwealth closely. Its members have a common tradition and experience in a variety of areas such as public service reform, law, health, education; and economic and social reform processes.
7. The fact that Commonwealth membership cuts across the North-South divide while having a global reach, and contains diverse experience in development, constitutes a great strength in the specific context of advancing the use of the ICTs. The Commonwealth has in its membership successful examples of adaptation of ICTs, and a rich reservoir of technical and human resources. At a multilateral level, many Commonwealth initiatives are already using ICT to support social and developmental work. Existing Commonwealth organisations (e.g. COL, CTO, CFTC Third Country Programme, the Commonwealth Science Council's Commonwealth Knowledge Network, COMNET-IT) have substantial and relevant expertise on the development of ICT applications and on the development of software applications for a wide variety of purposes. The Commonwealth's facility for communication and mutual support is reinforced through well-established Commonwealth professional associations in a range of areas, and strong linkages among civil society groups across the Commonwealth. These bodies give it a wide reach in addressing traditional developmental issues, in implementing practical projects and in acting a conduit for applying and promoting ICT use in a wide range of areas. They all have the potential to deliver more. These strengths place the Commonwealth in a good position for its members to assist each other through bilateral and/or multilateral programmes of co-operation.

Creating Information Societies

8. Before we proceed to set out our conclusions on the role of the Commonwealth, it is important to stress that bridging the digital divide requires action at various levels – governments, entrepreneurs, the private sector, civil society – within a framework of policy that sets out a vision for each society; establishes appropriate legal and regulatory frameworks for the development of ICT; strategies for human resource development;

promotes the development of the technical and information infrastructure; and advances e-Government and e-governance. It is critical that the advancement of ICT not be viewed in 'silo-type' terms. ICTs are not relevant only to particular sectors in isolation; they provide new technology with the potential for affecting change and accelerating development in all aspects of the economy and society.

- The Role of Governments

9. We strongly believe that a key objective of governments in the digital age is the empowerment of society. They must assume a strong advocacy role for ICT development and use, and provide leadership in using ICT. In creating an information society, governments should ensure that people are both participants and beneficiaries. ICT should not be the preserve of a few, and the enabling environments that governments must establish for ICTs to succeed should provide opportunities for all – individuals and businesses - to access ICT training, and applications and services. Specific actions governments can take include:

- Advocacy of ICT and ensuring that it is high on the national agenda;
- Formulating national objectives and strategies for ICT within the wider development context, and establishing public service obligations for ICT actors;
- Establishing appropriate legal and regulatory frameworks that encourage more open competition in the telecommunication and other ICT industries, as well as universal access for disadvantaged groups and areas;
- Establishing opportunities for, and facilitating, education and training, for creating and using ICT capacities; and promoting ICT as a means of delivering the non-ICT curriculum.
- Promoting the use of ICT in diverse fields of education and training, including through promotion of distance education;
- Championing ICT use through promoting e-Government services at the national and local levels;
- Facilitating linkages between government and businesses, and strengthening mechanisms for interaction between government, consumers and citizens, and creating opportunities for civil society groups to identify opportunities for the development of an information society.
- Encouraging private enterprise through the establishment of an enabling economic environment and getting the economic fundamentals right;
- Encouraging civil society to contribute to the development, and make effective use, of ICTs;
- Attracting foreign direct investment into the development of ICT-related capacities, including the development of infrastructure and the reduction of connectivity and access costs; and

- Encouraging domestic investment in the ICT industry and in ICT applications by domestic small businesses through appropriate incentive schemes and greater competition.

- Role of Entrepreneurs and the Private Sector

10. Much of the recent changes and ICT developments across the globe have been driven by entrepreneurial activity and investment. We acknowledge the importance of the dynamic role of entrepreneurs – local individuals with initiative, ideas and expertise – as distinct from the contributions of large national and multinational corporations in developing and launching ICT products and services (e.g. Sim Wong Hoo of Singapore, Satyam Computers of India). Entrepreneurs have been instrumental in introducing and further developing ICT systems and applications, rolling out local and wide access networks within and beyond urban areas, and providing a wide range of e-services in many ICT advanced countries. Their role is especially significant given the growing importance of e-commerce. They also play a critical role in providing ICT education and technical training through dedicated domestic academies and global co-operative networks. Governments must foster an entrepreneur culture so that individuals with ideas and entrepreneurial drive have opportunities to contribute to ICT development. Governments can also play a role in expanding facilities for providing seed money (including micro-lending) for local research and development on low cost technologies and applications that are relevant for users in different countries. They can encourage the establishment of business incubators and entrepreneurial networks.

11. We believe that many of the ICT programmes that could bring greater public access and ICT training opportunities to Commonwealth countries can succeed only with the input of the expertise and capital of the private sector. In pursuance of this goal, the following actions by the private sector – domestic entrepreneurs and foreign companies – are necessary:

- Investing in local research and development into ICT development and applications, and using ICT for innovative problem-solving;
- Investing in local ICT infrastructure development in partnership with government and development agencies;
- Establishment of financing mechanisms such as venture capital funds to enable entrepreneurs to gain access to capital for investment in ICT product and service development;
- Strengthening links and sharing or developing technical information and knowledge in partnership within the local and wider business community, and with government.
- Contributing to the provision of ICT education and skills training in partnership with state institutions, as appropriate.
- Promotion of ICT application and use through adoption of ICT in local business management; and

- Development of incubators for ICT business ideas and fostering an entrepreneurial culture within research institutions.

- The Role of Civil Society

12. Many non-governmental and civil society organisations work at grass-roots level and enjoy a far greater reach than most governmental and business organisations. As networks of people, they also benefit greatly from ICTs for their communications and knowledge sharing. NGOs are responding to a new vision of ‘civil society’ where the building of a democratic, vibrant civil society is seen as directed to achieving developmental goals as well. The empowerment of the individual, and the weaker sections of society such as the rural poor, the unemployed and the underemployed, young people and women contributes both to advancement of democracy and more equitable growth. NGOs (e.g. Sangonet) and civil society organisations (e.g. youth clubs) who work with such communities have the potential to enhance their own contribution and help build the ICT capacities at a wider level. The focus should be on people and their information and communication systems. We believe that NGOs and civil society have a key role to play in:

- Advocating the needs of communities in the design and implementation of ICT strategies, programmes and applications;
- Raising awareness about and commitment to using ICT services and generating opportunities and benefits within communities and at the national level;
- Acting as interlocutors in the provision of e-services and public access points within communities, partnering with government and the private sector in assisting citizens and communities to use ICT and e-services; and
- Providing opportunities for training and establishing capacities for ICT use at grass roots level.

The Role of the Commonwealth

13. While the responsibility and resources for bridging the digital divide need to be located at the national level, the international community at the multi-lateral and bi-lateral level can play a significant supportive and catalytic role in making it happen. It can do so through promulgation of best practices, facilitating the sharing of experience, provision of expertise and training, and financial support for investment. We welcome the many significant current global initiatives and sources of support that are underway, including in particular the G-8 DOT Force, and the United Nations Secretary-General’s Task Forces.

14. We believe that the Commonwealth should remain committed to the development and application of ICT as a tool for the promotion of its core values, that is, democracy, good governance and sustainable development.

15. In developing its ICT programmes further, we believe that the Commonwealth should focus its action at the bilateral and multilateral levels on the five areas listed below, building on its existing work and strengths. In making our recommendations, we are conscious that the implementation of the five Action Points requires efforts at different levels by actors working individually and collectively to address the digital divide at the national, bi-lateral and multi-lateral levels. Co-operative inter-governmental partnerships can assist governments to create enabling national environments through sharing information, technical knowledge and expertise in all aspects of ICT development and application, by supporting ICT assistance programmes, and by encouraging cross-national ICT business networks and inward investment.

Commonwealth Action Programme for the Digital Divide

Recommendation 1

16. The Commonwealth should help to build and strengthen capacity in ICTs in member countries through support for a five point action programme aimed at strengthening the building blocks for information societies within and outside the Commonwealth.

17. Tele-Centres as Knowledge Shops (Action Point 1): The Commonwealth countries have rich experiences in establishing opportunities for public access to ICTs. The promotion of telecentres as knowledge shops is intended to ensure that telecentres within the Commonwealth focus on building capabilities rather than simply on access to information or networks. Electronic networks provide a means to access, manage and communicate information and services that are essential for enabling citizens, consumers, businesses and voluntary organisations to participate fully in the modern global economy, and to participate in, and realise the benefits of, information societies.

18. In order to address the uneven levels of access to ICT applications and the information and communication infrastructure, the Commonwealth should place priority on the development of a comprehensive strategy for the creation of knowledge shops that can be supported or hosted by telecentres. The Commonwealth can play a major role in identifying and documenting successful examples of entrepreneurial activities and in assessing their impact on poverty reduction. Community information centres can support information sharing and exchange, public service access centres can support public access to a mix of services, school networks can underpin education applications, e-business centres can support the development of e-commerce, and community training centres can provide sites for capacity building in priority areas. Telecentres can provide a focal point for measures to strengthen community governance.

19. **ICT Policy Resource Centres (Action Point 2):** The Commonwealth can mobilise information resources that offer significant 'value added' to government policy makers and other key stakeholders who otherwise lack access to such consultations and information resources by establishing Centres specialising in ICT Policy and information resources. The Commonwealth can play a leading role in policy making and the development of legal and regulatory frameworks for stimulating e-commerce and for developing e-government services. This is especially so because Commonwealth agencies have long-established trusting relationships with member governments and other stakeholders in the Commonwealth (e.g. CFTC's advice in negotiating agreements and in e-governance, with multi-national corporations, and CTO's and COMNET-IT's work in advising governments on national ICT strategies). The reach of Commonwealth information and training-related services in key areas could be extended by enabling ICT Policy Resource Centres to provide comparative information across Commonwealth countries about how ICT initiatives can be linked to development goals in the health, education, entrepreneurship, gender equity and other areas.
20. ICT Policy Resource Centres should help and encourage e-readiness at national and sectoral levels, through *inter alia*, support for the development of national and sectoral ICT strategies; contributions to the development of creative approaches to stimulate investment and extend access to ICT through effective telecommunication policy and regulation, and the formulation of legal and regulatory frameworks for e-commerce. Such Centres also provide frameworks for mobilising expertise and investment resources in ICT development and use. The Commonwealth could play a valuable role in facilitating the sharing of policy resources and expertise available among Commonwealth countries; and in acting as a catalyst and broker in accessing wider international resources.
21. **Skills for ICT Development and Use (Action Point 3):** The availability of appropriate skills for the establishment and development of the ICT infrastructure and its application and use is critical for building effective information societies and for bridging the digital divide. Priority should be given to national and regional training initiatives, inter-country training and the promotion of distance learning. The Commonwealth agencies have a strong track record of delivering skills and training in ways that are responsive to the needs of member countries. (e.g. COL, CFTC third country training programme). ICT-supported education provides opportunities for developing courses and training packages in all sectors. English is currently the predominant language of use in the Internet. This gives the Commonwealth a major advantage in promoting skills for ICT development and use although it must also be recognised that language and local content are very important issues.
22. The Commonwealth should promote centres of excellence in training for ICT skills at the national and regional levels; support the CFTC third country training programmes that exchange expertise and create opportunities for building ICT skills capacity; and promote distance learning, such as the techniques for e-learning and web-based training materials

for ICT skills that promote access to wider populations, building on Commonwealth expertise in developing distance learning. The availability of appropriate skills for the establishment and development of the ICT infrastructure and its application and use in various sectors of the economy and society are critical for bridging the digital divide and taking advantage of new digital opportunities.

23. The need to develop a strong national skills base in ICT can be undermined by the loss of skilled people to countries able to offer more attractive salaries and conditions. There is a mix of strategies that can be pursued to limit the impact of skills loss through migration. The Commonwealth can assist countries to address the issues by advising on available strategies to promote local industry development, and traded ICT services and strategies to retain and attract skilled ICT people.
24. **e-Government for Good Governance (Action Point 4):** The experiences of Commonwealth countries are extensive in developing ICT initiatives for e-government and improved governance and in using government as a 'model' to encourage the development of other e-services. There is a major opportunity for the Commonwealth agencies to provide leadership in this area building on their current work (e.g. COMNET-IT, Commonwealth Centre for Electronic Governance, CFTC). The Commonwealth agencies are well placed to advocate the development of e-government services that improve public information access and transparency, and to enable new kinds of interactions between citizens and governments. They are well placed to share experience in developing electronic procurement systems and to improve their own use of ICTs to support their initiatives.
25. Investment in e-government significantly helps to catalyse the consolidation of national and sectoral ICT development. The promotion of good practices in this area can favourably influence the transformation of governance. The Commonwealth should play a major role in the advocacy of, and policy development for, e-government; facilitate the sharing of good practices on e-government applications development and implementation; encourage skills training for e-government and information management for better public services; assist in the launch of pilot activities; and use ICT within the Commonwealth to improve e-governance. Given the strong similarities between small and island states of the Commonwealth, a focused programme and special assistance for such countries, leveraging information society goals through e-government, is strongly advocated.
26. **Knowledge Networks for Information Sharing, Innovation and Professional Development (Action Point 5):** The development of technologies for quick and inexpensive transmission and storage of information and other data is opening up unprecedented opportunities to manage available information to solve a range of problems in an innovative manner, and to promote professional skills. The Commonwealth should promote knowledge networking through the establishment and development of knowledge networks in selected priority areas of need in its member

countries in such areas as parliamentary and electoral processes, law, public service reform, education, health and the like; facilitate access of member countries to existing regional and international knowledge networks; assist with the creation of capacities at national and local levels for knowledge networks, with a view to promoting innovative solutions (e.g. local governance and administration procedures, water management); and address issues of intellectual property rights, including awareness and education on the intellectual property rights within developing countries and their intellectual assets.

A Commonwealth Mechanism

Recommendation 2

27. The Commonwealth should establish a mechanism, under the authority of the Commonwealth Secretary-General, to review and as necessary strengthen existing mechanisms, and prioritise, co-ordinate and support projects in the Commonwealth Action Programme for the Digital Divide for implementation by Commonwealth agencies including non-governmental organisations.

28. The tremendous scope and impact of ICTs across the whole range of development, affecting social and civic as well as economic advancement, suggests the need to integrate ICT considerations into the development work of all existing agencies, rather than to narrow the focus to a single organisation or mechanism. The Commonwealth community already possesses a number of instruments for the promotion and application of ICT. However, there is a need for greater overall strategic leadership for, and political commitment to, Commonwealth-wide information society initiatives. This will help promote greater priority for, and adequate resourcing of, the ICT-based programmes and activities of Commonwealth agencies and mechanisms, help to further clarify agency mandates concerning ICT, and ensure greater co-ordination in programme activity. We believe that the value of Commonwealth agencies' work can thus be enhanced by ensuring that their work is strategically directed, prioritised, efficiently co-ordinated and effectively resourced.

29. The establishment of a forum for prioritising and planning across Commonwealth organisations involved in ICT-based development activities would help achieve greater clarity and understanding of the ICT missions of Commonwealth agencies and their resource commitments; facilitate joint planning and co-operation among agencies and with the private sector; provide additional funding at an appropriate level with a co-ordinating and oversight mechanism for the implementation of the five point programme; and provide for high-level strategic direction and commitment to the development of information societies across the Commonwealth.

30. All member agencies of the Commonwealth, including voluntary and private sector organisations, should clarify their ICT roles and objectives in the context of their overall

mandates, and specify their current and future resource commitments in this area. These contributions could form the basis for a Commonwealth strategic plan within the framework of the Commonwealth Action Programme for the Digital Divide advocated in our Report, for endorsement by Commonwealth governments and other partners as the basis for future action.

31. A high ranking Commonwealth Secretariat official, say at the Deputy Secretary General level, should be designated as responsible for the overall co-ordination and advocacy of these efforts and help mobilise external resources, through the convening of an annual meeting of key Commonwealth agencies during the Commonwealth Secretariat Resource Week for the purpose of forward planning of ICT-based projects and activities, to encourage inter-agency co-operation, to identify economies of scale/scope, and to target possible strategic alliances with non-Commonwealth bodies.
32. The official would also be responsible for reporting to governments on the ICT-based functional co-operation and development efforts across the Commonwealth at the annual Resource Week meetings, and for its advocacy efforts to promote the importance of the information societies initiatives and the Commonwealth's role in ensuring their benefits are realised across all member countries.
33. Recognising the significant contributions that many Commonwealth agencies are making to the development of ICT (see Annex B), we invited them to provide information on their programmes and projects falling within the framework of the five initiative streams for implementation in the next 2 to 3 years, and the additional resources required. The high ranking Commonwealth Secretarial Official, referred to in para 31 above, should be aware of the responses received in the context of the Annual Meetings of key Commonwealth agencies proposed above. We call on all the Commonwealth agencies to enhance the priority they attach to ICT projects in their programmes, and lead by example through adoption of ICT in their own management and work practices.

A Commonwealth High Level Forum on the Digital Divide

Recommendation 3

34. **The Commonwealth Secretary-General should convene a high level forum immediately prior to the CHOGM 2003 comprising Commonwealth governments, representatives of international aid agencies and business, individual entrepreneurs and civil society organisations to bring political momentum to the advancement of the ICTs, and for promoting co-operative action by them.**
35. We believe that the Commonwealth should sponsor a high level information society forum which brings together political, business and civil society leaders to share success stories in using ICT, establish partnerships within and outside the Commonwealth, facilitate the

dissemination of research reports, information and policy initiatives, consider the possibility of launching a private sector-based fund for investment in ICT projects, and confirm commitment at the highest level to the priorities associated with the development of information societies in all countries and to leverage global initiatives.

Recommendation 4

- 36. Furthermore, in order to affirm leadership and commitment at the highest levels, we recommend that Heads of Government continue to monitor progress on the efforts to narrow the digital divide and the contribution of ICT to the developmental priorities of Commonwealth countries.**

1 ICT: OPPORTUNITIES AND CONSTRAINTS

This Chapter sets out the major opportunities for using ICTs in support of sustainable development and improved governance especially in less ICT advanced countries and the risk that a growing digital divide will mean that the potential benefits of ICTs are unevenly shared.

- A growing digital divide prevents governments, the private sector, and especially entrepreneurs, and members of civil society and their representatives from benefiting from the empowering and enabling opportunities offered by ICT.
- In the Commonwealth, the pattern and extent of the global digital divide is replicated; between countries there is considerable variation in infrastructure development, pricing strategies, and Internet usage.
- Policy and regulatory action is essential to increase the accessibility and affordability of ICT access.

1.1 The Global Situation and the Digital Divide

1. ICT is an enabling - and potentially empowering - technology. When ICT is accessible and affordable - and designed to support specific needs for analysing, storing and exchanging information, it can enable people in all sectors of society to accomplish tasks that otherwise would be too costly or impossible without them. The advanced ICT countries are rapidly devising ways of reaping the benefits, especially, of digital technologies and of the expansion of global networks. Investment in ICT can create new opportunities for promoting sustainable development and for deepening democratic and good governance practices. It is to be noted that:
 - There is an increasing convergence between telecommunication, broadcasting, and information technology (including computer hardware and software) resulting in rapid increases in the deployment of digital systems and growing variety in the ways businesses, consumers and citizens can access information and communication services;
 - Internet access and applications are growing rapidly in the high and middle income countries; but access in the low income countries remains limited;
 - The restructuring of the telecommunication industry, nationally and internationally, is creating many alliances between telecommunication network operators in developing countries and the major players in the industrialised countries, and new potential for training and capacity building; and

- There is an expansion of efforts by large firms producing packaged software (e.g. Microsoft) to provide training and the growing use of open source software and the Internet to develop new applications.
2. These developments offer vast new digital opportunities, that is, the potential for using ICT to facilitate sustainable social and economic development and to enhance the capacity of citizens, businesses and other organisations to participate effectively within their local, national and, increasingly, global communities.
 3. The digital divide means there is a very substantial risk that those without the capacities to access ICT, or to use it effectively, will be further marginalised. The global economy and social order are becoming increasingly dependent on ICT to support economic growth and governance activities. This has a knock-on effect on the sustainability of existing markets, institutions and social and economic practices. Although social, economic and technological divides are not new, they are deepening.
 4. The risks and opportunities associated with ICT co-exist as a consequence of the networking revolution. There is a consensus that *networking* - with and without ICT - must be given greater priority in the development portfolio in order to facilitate information exchange and knowledge sharing. Discussions about ICT often focus mainly on the potential of technology, but ICT is only an enabler. New services such as Internet-based electronic mail services and the World Wide Web allow users to participate in a global space. This has major implications for social cohesion, information availability and sharing, education, healthcare, gender issues and citizenship, as well as for all aspects of business and the economy.
 5. The scale of the global digital divide is now familiar even to those who do not wish to give a very high priority to ICT as compared to other important claims on investment for development. Maps of the gaps in connectedness between countries world-wide show that, despite high growth rates in recent years, the scale of the digital divide has changed very little in terms of access to ICT (see Annex C, Chart 8). Differences in access to telecommunication services between the OECD and non-OECD member countries persisted during the 1990s, despite the growth of mobile services (see Annex C, Chart 7).
 6. It is estimated that the OECD countries invest about USD 116 per person in their information infrastructures, while the rest of the world invests only USD 19. Many argue that new digital technologies including wireless (satellite and radio) offer the means for less ICT advanced countries to overcome barriers created by the lack of an adequate telecommunication infrastructure. Low earth orbiting satellites, geo-stationary satellites, Very Small Aperture Terminals, and Ultra High Frequency radio provide options for low-income countries and mobile cellular network services are reaching many new subscribers, even in the poorest communities. Even though there is rapid growth in

Internet host computers in many less ICT advanced countries, the disparities of the voice telephony dominated era are being replicated in the data communication dominated era.

7. The costs of developing the necessary information and communication infrastructure are declining, but the task is enormous and expensive. Achieving connectivity is out of reach of many users and especially for those in low-income countries, and in the rural areas of many countries (see Annex C, Chart 11, 24, 26).
8. A key feature of the digital divide is the size of the gaps between countries within particular geographical regions. Intra-regional distinctions are particularly marked in sub-Saharan Africa, where South Africa is far more engaged with the Internet than any other country (see Annex C, Chart 14).
9. In the light of the large variations between countries globally and within regions, it is important to consider the TeleCommons Development Group's argument that: '... the division between what are and what are not appropriate ICTs for developing nations results in a distinction between those technologies advanced enough to transmit voice, data and video and those capable of voice-only transmissions ... each telecom environment is unique, and that the choice of technical components must take into consideration the specific infrastructure, demographic conditions, organizational capacities, and policy contexts of the region.'
10. The constraints to infrastructure development are not only ICT-related. The lack of generally available and reliable electricity supply, especially in most villages is a major constraint to establishing connectivity. The application of solar energy technologies (panels or batteries) may offer a solution to fill the rural energy gap. There are also 'low tech' alternatives such that offered by South Africa's BayGen Power which manufactures a six pound portable crank-up radio 'Freeplay' (cranking the handle for 20 seconds produces 40 minutes of radio reception).
11. Diagnostic studies and evaluations of ICT projects are crucial to the construction of infrastructure in less ICT advanced countries if these countries are to have a means of achieving connectivity to participate in information societies. Although the cost-savings associated with the use of email are clear, as the 1999 UN Human Development Report noted, it should not be assumed that the presence of a network and computers means that ICT is accessible for many users. Cultural, gender, and institutional issues also present barriers to access. In addition, the prices paid by businesses and many citizens for Internet access are prohibitively high in many countries (see Table 1).

Table 1 Monthly Internet Access Prices in Selected OECD and African Countries

OECD	USD	As % of GDP per Capita	Africa	USD	As % of GDP per Capita
Mexico	94	14.8	Uganda	92	107.0
Turkey	65	12.8	Guinea	65	45.3
Japan	50	2.6	Sierra Leone	50	118.0
Finland	33	2.2	Ethiopia	32	76.8
US	29	1.2	Mozambique	29	69.6
Australia	24	1.5	Senegal	24	17.6

Note: Comparisons need to be interpreted with caution due to data reliability problems and variations over time.

Source: Commonwealth Working Group on Electronic Commerce, 'Draft Strategy Paper - E-Commerce in Commonwealth Countries 'Making IT Happen', December 2000, p. 41.

12. Many commentators have attributed the dynamism of the US economy in the 1990s to the spread of ICT and the related increases in productivity. There is increasing evidence of the benefits of ICT to those who have found ways to use these technologies to improve and strengthen their social and economic networks. For example, Miller and Slater have shown that in Trinidad, whereas formal statistics indicate that only one in twenty households is connected to the Internet, in fact, one in three households has access to an email account. The variety of uses for social and economic reasons is enormous and these are valued by many users. At the micro-level, there is growing evidence that ICT is becoming essential for citizens, civil society organisations, businesses, and governments. The success of Grameen Telecom in Bangladesh also shows what can be achieved through micro-credit schemes when policy and regulation favours such developments.

1.2 Creating New Models for Access

13. Considerable attention is being given to creating new models for providing improved access to ICT applications and services in ways that have the potential to reduce the impact of the digital divide. Electronic networks provide a means to access new information and e-services. Telecentre initiatives are providing new models for private and public investment as well as for public and private partnerships. When they are successful, they can contribute substantially to the development of the technical and information infrastructure. They can support community information sharing, citizen access to local and global communities, education delivery, business entrepreneurship, and specialised ICT training and training.
14. The results of the first surveys of the viability of telecentre initiatives in less ICT advanced countries are starting to become available. For example, Table 2 shows the geographical distribution of 116 Telecentres located in South Africa, indicating that these centres are being developed mainly in rural villages or townships, or towns and cities. Relatively few are providing access to people in informal settlements.

Table 2: Location of Telecentres in South Africa

Telecentre Location	%
Rural	31.0
Township	38.8
Town or City	25.0
Informal Settlement	2.5
Other	2.5

Source: Daniel Espitia G, 'Telecentres as a Key Strategy for Bridging the Digital Divide', Prepared for meeting of Expert Group on Information Technology, Cape Town, March 2001.

Note: N = 116

15. Table 3 shows that many telecentres are being developed by formal institutions, but 15% of the 116 Centres surveyed (as of 13 February 2001; there are now some 250 Centres) were reported to be in no particular location.

Table 3: Institutional Location of Telecentres

Telecentre Location	%
Schools	38.7
Community Centres	27.5
No particular location	15.0
Library	7.5
Radio Station	2.5
Clinic	1.5

Source: Daniel Espitia G, 'Telecentres as a Key Strategy for Bridging the Digital Divide', Prepared for meeting of Expert Group on Information Technology, Cape Town, March 2001.

Note: N=116

16. Of these 116 telecentres, 59.5% are community owned, 25% are government owned, 12.9% are privately owned, and 2.6% are owned by others. Women were reported to comprise 54.2% of the users. The services include computer access and training, typing, education courses, photocopying, fax, telephone calls and the provisions of community information and advice and counselling. The largest expense of the telecentres was often the cost of the telephone link, but this was not the largest source of income. The relative success of the telecentres appears to depend upon their ability to provide services that are responsive to demand, the availability of external support, and their recognition by associations involving local users.
17. The results of another South African survey of 203 community ICT projects in 2000/01 suggest that, while a large proportion of the projects are successful, fewer than half are profitable and still fewer generate funds to support a salary for the provider of services. Most have problems with consumables, training and maintenance. Entrepreneurial action

by those with a stake in the local environment is crucial for success as is national support for ICT projects to provide training, mentoring, business support, and opportunities for bulk purchasing of equipment, insurance for premises and equipment, and maintenance services. Information networking continues to be costly despite declining equipment costs.

18. The sustainability of telecentres depends upon the type of organisation (commercial, school, municipal, community, etc.) and the strengths and weaknesses of the market. The major issues are how sustainable commercial viability can be established and, when it cannot be, what measures can be taken to offer public access at the lowest possible subsidy by special levies on operators or by donor organisations.

1.2.1 Developing Human Capabilities

19. A key feature of discussions about the opportunities for building global information societies and the risks associated with the digital divide is the recognition that human capabilities are as important, if not more important, than ICT itself. Human capabilities are needed to establish policy and related institutions, to mobilise resources locally and globally through partnerships, to define information and communication needs, to develop ICT solutions that are relevant to those needs, and to incorporate new information into business and social practices in productive and socially beneficial ways. These capabilities are scarce resources worldwide. They are especially so in less ICT advanced countries.
20. There are numerous examples at the local, national and global levels of efforts to use ICT to provide improved content and access to general education and ICT specific skills training. Existing initiatives are sponsored by a variety of public and private sector organisations within countries and by multi-lateral agencies. Some initiatives are aimed at strengthening education attainment levels of those who are marginalised and excluded from formal education and training institutions; others are tailored to build a highly skilled workforce in key areas that have been targeted by policy makers for economic development.
21. There are many different models for developing ICT-supported education and training. For instance, in the Pacific Islands, virtual education services are being provided by the Extension Unit of the University of the South Pacific in Fiji using satellite connections. The M.S. Swaminathan Research Foundation in South India is supporting the Village Information Project in Pondicherry. Other examples of ICT-supported learning include World Links for Development (WorLD) which provides Internet connectivity and training for teachers, teacher trainers and students, sponsored by the World Bank Institute. The WorldSpace Foundation is developing an Africa Learning Channel using satellite-based village radio receivers and combines content from NGOs and other producers.

22. Although ICT is providing new opportunities for human resource development, there are constraints to the scale and scope of such initiatives. In many cases, there is an absence of 'information appliances' (e.g. computers, televisions). Copyright restrictions on the use of instructional products and materials can restrict information sharing through collaborative inter-institutional arrangements. There are also high up-front costs of implementing distance education and training programmes. The initial hardware, operating software, and instructional material often requires funding that exceeds the resources of most institutions. Systems of support for learners are often not consistent with the demands of learning in virtual environments. Teachers may be reticent to embrace ICT, educational philosophies may not be consistent with interactive media, and there may be a strong preference for face-to-face learning when teachers and learners are given a choice.
23. A key challenge is to select learning environments where the skills base can be enhanced throughout the population. To take advantage of the new opportunities, emphasis must be given to the community context for learning. Studies have shown the importance of both community-based learning and intermediary agencies and organisations which provide services to support effective strategies and action plans. The important ingredients are participatory approaches, partnerships, involvement of local politicians, the identification of local champions, and appropriate technology and information content.

1.3 *ICT Creates Opportunities for Better Governance*

24. There are growing numbers of examples of opportunities created through the use of ICT to develop e-government services and to support improved governance. For instance, in India an e-government or 'Kerala' model is being developed using open source software. The Panchayat Level Information Network Project is using Linux as the operating system to support integrated information systems for agriculture, veterinary, school, and health information. Through automation and software applications using other proprietary systems, ICT use can help to reduce administration costs, reduce the cost of service provision, and open government to greater public oversight and accountability. For example, Andhra Pradesh was the first state in India to design a state-wide computerisation programme linking the largest and smallest government offices.
25. In Singapore, the government is spending some USD 100 million annually on ICT for the civil service to enhance decision making and public administration. For every dollar spent on this programme, it is estimated to have generated USD 2.70 in return due to increased productivity and reduced operational costs. Over 1,500 jobs are said to have been eliminated from the public payrolls, but an additional 3,500 jobs have been reoriented towards more productive outputs.
26. Canada is playing a major role in stimulating the development of e-government. The Government took early steps to emphasise ICT access and digital literacy and to identify

sectors that would benefit most from the use of ICT. In this case, the Government is seeking to be a 'model user' of ICT.

27. In spite of the many activities that are underway, the full potential of ICT to support e-government remains unexploited. According to Accenture's 2001 survey of 22 mainly advanced ICT countries, the public sector lags behind the private sector in its use of the Internet. The tendency for governments to lag behind the private sector in making effective use of the potential of the Internet is only one of the constraints to effective use. In some cases, e-government services are under-utilised because they are technology-led. For instance, the introduction of an Intranet system providing information on property ownership to staff and clients of the Johannesburg Metropolitan Council in South Africa was unused because it was not 'needs focused' and training was inadequate. But e-services are being successfully developed for automated customs clearance and electronic filing of export documentation, for instance, with the support of UNCTAD's Global Trade Point Network.
28. A study of information systems for public sector management in India by Heeks provides a reminder of the need to focus ICT strategies for e-government and improved governance directly on people and their actions: 'IT on its own does not do anything useful; in order to do anything, it must become part of an information system; information systems do not necessarily involve computers and telecommunication equipment; even when they do, information systems are much more than just IT because they involve people and their actions'.
29. Other constraints to e-government service development include a lack of awareness on the part of public officials of the potential of ICT. Officials may recognise the potential, but delegate responsibility for ICT systems development to 'computer experts' who do not liaise with users. Sometimes preparations are not made to support the on-going costs of maintaining ICT systems. Successful systems development is much more likely where ICT is integrated as a key organisational resource by focusing on information needs first.

1.4 Potential for Improved Knowledge Networking

30. The new digital technologies provide unprecedented means for aggregating, delivering and using information. Information societies that make increasing use of digital technologies have new opportunities to develop knowledge networks to address a wide range of development-related problems in the public and private sectors. Software applications can provide information targeted to specific users, they can support profiling of user activities and interests, they can facilitate searches for relevant content, and they can be applied to create directories of people with similar interests and problem-solving experiences.

31. ICT applications such as groupware, email, document management, and search and retrieval systems can support individual and organisational activities and networks to foster new communities of practice, to enable mentoring and apprenticeship and to support creative and intuitive solutions to problems. Knowledge networking systems offer opportunities to reuse information, to share best practices, to support skills development and training, and to assist in problem-solving in all areas of the economy and society.
32. Despite the new opportunities in this area, there are constraints. It is important to avoid confusing information with knowledge. The management of new digital sources of information must be linked to the development of communities of practice and embedded within distinctive organisational styles and politics. Software applications provide sources of digital information but such information must be applied in the context of users' experiences, if it is to contribute relevant knowledge. The digital technologies can be used to create databases to support information sharing, innovation and professional development, but they also raise new issues for privacy and for the commercial security of information that must be addressed.

1.5 The Commonwealth in the Digital Era

33. Information about the diffusion of ICT generally is presented on a global or regional basis. This makes it difficult to assess the particular strengths and weaknesses of Commonwealth countries. The Expert Group on Information Technology commissioned the Commonwealth Telecommunication Organisation (CTO) to undertake a study of the specific pattern of the digital divide within the Commonwealth. The CTO also examined the opportunities and constraints to building information societies in Commonwealth countries (Annex C contains the full main report).
34. The CTO analysis shows that the global digital divide - between rich and poor countries - is reflected in the Commonwealth data. Notwithstanding problems of data reliability, the results of the CTO analysis point to key features of the digital divide between and within member countries of the Commonwealth.
- There is considerable variation between growth rates of fixed and mobile networks in different countries possibly associated with different timings of mobile licensing, the extent to which mobile enables bypass of fixed line waiting lists, and the types of tariff models in use.
 - There are considerable differences in the tariff packages offered by different operators and in the affordability of ICT access.
 - For the African region, South Africa dominates Internet usage.
 - Most Caribbean Commonwealth countries out-perform the rest of the Caribbean region where fixed lines are concerned. However, the experience is different in the

case of mobile connections where most Commonwealth countries in this region underperform the rest of the region. There are similar intra-regional disparities between the Asia Pacific Commonwealth countries (see Annex C, Charts 19, 20, and 21-23).

35. The CTO surveyed the ICT priorities of Commonwealth governments for the next five years and their views of priorities for the Commonwealth as a whole (See Annex 2). Table 4 lists the principal areas in which the reporting countries believe that Commonwealth governments have a role to play and the areas where they believe Commonwealth agencies are playing a helpful role in creating new opportunities and in bridging the digital divide.
36. The CTO analysis of the extent and patterns of the digital divide in the Commonwealth countries is the first to highlight the distinctive patterns and opportunities and constraints that these countries face. Further detailed analysis of existing data would provide insights for policy makers, the private sector, and civil society organisations about the priorities that need to be addressed in each country. Commonwealth countries are facing important issues that concern, not just ICT itself, but the human, organisational, social and market related transformations that accompany the development of societies in the global digital era. There is a need for:
- More sophisticated measures to capture real access to and usage of telecommunication networks and Internet based services especially in low-income communities.
 - Further analysis of the links between competition, privatisation and regulation for Commonwealth countries, and access conditions especially for those in poor and/or rural communities.
 - More detailed regional analysis of country data-sets to identify significant issues for regional policy within the Commonwealth and for Commonwealth low income countries and Commonwealth small and small island states.
 - More detailed analysis of individual country experience where countries outperform their peers in terms of GDP per head or on the UNDP Human Development Index and within-country analysis of divisions by income group, gender or educational attainment.

Table 4 Commonwealth Selected Key ICT Priorities for Governments and Commonwealth Agencies

Country Key Priorities for ICT	Commonwealth ICT Key Priorities
<ul style="list-style-type: none"> • Co-ordination, strategic planning and management • Develop human resources • Develop infrastructure • Diversification of supply of new technologies, radio. • E-government applications • Encourage competition. • Facilitate private investment • Frame legal issues • Freedom of Information • Growth in local enterprises (SME) and services • Increase employment • Increase IT awareness • Increase Telecentres and access to rural areas • Liberalise telecom market and encourage competition. • Link scattered outer-islands. • Literacy campaign • Promote e-business • Regulation • Review on tariff and customer services • Training and skills 	<ul style="list-style-type: none"> • Assist member nations in management of structural adjustment • Distance learning • Encourage R&D in ICT • Facilitate policy dialogue • Formation of group to monitor IT and suggest measures for Least Developed Countries, incl. Affordable access • Free internet in schools • Generic framework on good practice • Human resource development • ICT for sectoral sustainable human development • Increase employment • Information infrastructure • Liberalisation of telecom, promote open markets • Policies and legislation • Policy, legal and regulatory provisions • Public awareness • Regional co-operation • Regulation • Sharing developments • Technology and Knowledge transfer • Training and Skills

Source: Selected from CTO, 'Information and Communication Technologies in the Commonwealth, A report for the ICT Expert Group, March 2001, Annex E to the main report, based on a survey of Commonwealth Governments.

2 POLICY CONSIDERATIONS

This Chapter sets out the principles that should inform ICT policies and strategies aimed at bridging the digital divide and at maximising the benefits of ICT. The Commonwealth is in a pivotal position to influence the uneven spread of ICT through its own strategic actions and by facilitating the actions of others.

- Effective ICT policy and strategic action should be guided by five key principles: vision, legal and regulatory frameworks, human resource development, technical and information infrastructure development, and e-government and new forms of governance.
- Efforts to mobilise resources to build more inclusive information societies must put the goals and values of development at the core of their visions; it is essential to incorporate plurality as well as common goals within visions that guide ICT policy.
- Legal and regulatory frameworks are essential to create an enabling environment for ICT development and use; the market must operate effectively if the private sector is to invest in social and commercial ICT applications; frameworks are essential for e-commerce and for citizen, consumer, and producer trust in e-services.
- The urgency of capacity building and skills development cannot be over-emphasised; the range of skills that is needed is enormous.

2.1 Policy Pre-conditions and Vehicles for Action

37. We believe that the pre-conditions for policy formulation and for selecting vehicles for implementation involve five key principles: 1) a *vision* of the kinds of information societies that Commonwealth countries want to build; 2) *legal and regulatory frameworks* for fostering the development and appropriate use of ICT; 3) *strategies for human resource development*; 4) *development of a technical and information infrastructure*; and 5) the development of *e-government and new forms of governance* involving the public and private sectors, non-governmental organisations, and members of civil society.

38. The development of policy to encourage ICT deployment must be embedded in, and co-ordinated with, social and economic development strategies. When ICT strategies are formulated without a strong consensus, they can become technology-driven or detached from the reality of the way people organise their social and economic lives. Policy formulation also must be connected with appropriate institutions and organisations if it is to have widespread support. Efforts must also be made to achieve sustained investment in targeted areas. Too many ICT pilot projects and experiments raise user expectations.

When these are not met, the result is resistance. Unused or poorly maintained information and communication systems create more - not less - problems for their users.

2.2 Principles for Effective ICT Policy and Strategy

2.2.1 Visions for Information Societies

39. There is much discussion about a collective vision of a 'global knowledge' or 'global information' society; a society in which ICT plays an essential role in enabling all people to improve their social and economic circumstances. At the global level, there is a high risk of a process of fragmented (inequitable) globalisation as the fastest expanding sectors of the world economy become more ICT-intensive.
40. As the G-8 Digital Opportunities Task Force (the DOT Force) has said, if the digital divide is not reduced, strategies to develop and use ICT for development may become targets for a 'globalisation backlash' as civil society and micro and small businesses fail to see positive transformations in their standards of living and quality of life. To mobilise efforts to build more inclusive global information societies, the goals and values of sustainable development and improved governance must be at the core of the vision.
41. People in different countries and regions of the world have multiple visions of their futures depending on their histories and the conditions of the present. This means that there is a need to formulate visions of information *societies*; visions that incorporate and respect the expectations of people and their communities within countries. It is essential to recognise the need to incorporate plurality as well as common goals within visions that guide ICT policy and related actions.
42. Visions for information societies should also recognise that, even in the most ICT-intensive environments, the new technologies cannot support all activities. All people will not want to access information or to communicate using these technologies. It is essential that visions of the future take into account the need for investment in opportunities for strengthening face-to-face social networks and the potential of the full range of old and new ICTs.
43. Visions for information societies should also be grounded in a realisation that learning how to design and use ICT applications proceeds very rapidly in some cases and very slowly in others. The speed of transformation depends on levels of awareness, how new applications are integrated with existing organisational and individual practices, and the emphasis that is given to education and training, and on-going support of all kinds. Assessments must be undertaken prior to determining that an ICT application provides a solution to particular development goals and problems. The evaluation of the outcomes of ICT initiatives must accommodate variations in the learning process and recognise that

time is necessary for beneficial outcomes to become apparent. Short-term thinking is a recipe for disappointment.

44. Many visions of information societies are premised on the empowerment of people who are located in rural areas or the most marginalised parts of urban places. The spread of global digital networks means that those who are connected can join global on-line communities to solve social and economic problems, lobby local, national and intergovernmental agencies to address their interests, or enter productive commercial relationships which span the globe. These visions hold promise for new employment opportunities and there is a potential for the expansion of distance working in countries that invest heavily in training a highly skilled ICT workforce.
45. It is also crucial to recognise that electronic networking can forge closer local communities, providing community information and making local government more transparent. Therefore, it is essential that visions for information societies give a high priority to local content and to fostering local networks of social and business groups.

2.2.2 Legal and Regulatory Frameworks for the Development of ICT

46. The resources of donor organisations and other institutions are only a tiny fraction of the investment needed to build new information societies. The private sector will need to invest heavily if the digital divide is to be narrowed. The private sector operates through markets that only work effectively if the appropriate legal and regulatory environment is in place. This is so for all markets, but in many cases, the necessary frameworks are not in place or are very weak in less ICT advanced countries.
47. If e-commerce and e-government services are to develop, there is a need to encourage competitive telecommunication and Internet Service Provider (ISP) markets, and the development of a market for the necessary information technologies such as computers, servers and software. High prices for national and local switched network access, for leased lines, and for Internet service provision, present major barriers. The implementation of policies and regulations to promote competition can encourage price reductions. The interconnection agreements between regional and national or local network operators are also very important.
48. The policy and regulatory environment must encourage creative measures to address the digital divide. Collective models (in the community, the workplace, schools, health centres, etc.) need to be encouraged using a variety of strategic means including investment by private entrepreneurs, partnerships between public and private organisations, and public initiatives. Ensuring that the legal and regulatory environment permits these initiatives and does not make them illegal is essential.

49. In the telecommunication policy and regulation field, less ICT advanced countries are restructuring their markets for telecommunication services and Internet services to introduce competition. Many are privatising their national operators and there is a need to devote resources to developing appropriate policies and regulations. The provision of information resources and training for policy makers is essential in order for them to assess the strengths and weaknesses of their countries and the appropriate policy responses.
50. It is costly for ISPs to establish multiple points of presence (POPs) which means that users in less ICT advanced countries often have to bear the costs of long distance calls. Some governments are mandating the establishment of nation-wide Internet area dialling codes that allow all Internet access tariffs to be set at the price of a local call regardless of the place of origin. This type of policy is an illustration of how policy makers can learn from each other when adequate information resources and training are available.
51. There are also many issues surrounding the development of Internet Exchange Points (IXPs) which are the physical installations created to facilitate on-site interconnection between independent ISPs. IXPs are intended to provide neutral ground for ISP traffic exchange in contrast to private Internet peering points that only facilitate their owners' interconnection with second parties. Developments in this area affect the costs and routing of Internet traffic and are creating a major need for policy development that benefits less ICT advanced countries within the Commonwealth.
52. The promotion of e-commerce also requires a legal and regulatory framework that maximises the 'e-readiness' of developing countries. Frameworks need to be based on the local and national context for e-commerce including information resources, the extent of connectivity, social development, and existing trade links and practices.
53. If the goals of building effective information societies and applying ICT in creative ways are to be met, high priority must be given to capacity building. This depends on the availability of appropriate content for training policy makers and other interested stakeholders; the capacity to compare local experiences and conditions with those in other Commonwealth and non-Commonwealth countries; and the means to deliver content and training.

2.2.3 Strategies for Human Resource Development

54. The urgency of capacity building for developing appropriate ICT applications and for enabling people to use them effectively cannot be over-emphasised. Effective strategies for human resource development are needed in many areas. The range of skills (general and ICT-related) that is needed to participate in more information-intensive societies as citizens or consumers, or as producers, is enormous. Skills issues include literacy (and

computer literacy) and access to education opportunities at all levels by both men and women.

55. ICT provides the opportunity to provide education and training at a distance. However, the costs of developing ICT-based education and training programmes for distance or open learning should not be underestimated. Studies by Farrell and others show that 'while it is clear that the application of ICTs to the practice of open and distance learning is growing rapidly, ... the concept of truly virtual education is still more rhetorical than real'. For example, the World Wide Web is often used simply as a publishing medium without addressing the interactive potential of the technology and there is little valid and reliable data on questions of cost. While distance learning using the Internet can bring new information to hospitals and schools, these organisations may be poorly connected to networks and education and training will require more than information delivered at a distance. Effective learning also requires institutions, skills and good management.
56. The delivery of ICT-supported training in the traditional classroom and using new forms of virtual education requires a conducive policy environment. Policy measures are needed to ensure that ICT planning is linked with educational planning. It is essential to consider the appropriateness of the technology to ensure that its use actually enhances learning and existing practice.

2.2.4 Development of technical and information infrastructure

57. Until recently, policy to promote the development of the technical and information infrastructure often focused narrowly on universal access to telephone services. It is now clear, however, that collective models of access provision can offer a variety of information and communication services. The models for such provision vary by country depending on local preferences and conditions and, particularly, on the extent of competition in the telecommunication sector.
58. There is a strong case for promoting collective forms of public access to ICT where the cost of private Internet access is too high for the majority of users (in Africa it ranges from USD 45 to 150 per month just for the Internet access charges). The cost of personal computers can represent more than a year's salary. Telecommunication operators are beginning to realise that leasing capacity to those who resell it can generate significant revenues. But all these initiatives, especially for rural areas, depend on a telecommunication infrastructure of some kind, long distance calls to connect to ISPs, rural generators and voltage stabilisers and shock protectors. It also must be possible to pay the high costs of maintenance, solve problems of finding local technicians, overcome the low earning capacity of the rural population, and to provide services that are attractive to non-literate users, who may have little formal education or familiarity with ICT. There is a very substantial need to develop the capabilities of decision makers to consider the

available options and to choose technical designs and organisational solutions that are responsive to needs and take account of the available resources.

59. Although the purposes of infrastructure development may vary enormously, policy initiatives should be guided by whether proposed ICT applications are responsive to problems, not by the practice of implementing technology or accessing information simply because the technological potential exists. It is important to ensure that ICT strategies and initiatives are 'mainstreamed' within wider policy initiatives so that they contribute positively to the broader development goals that are established.

2.2.5 E-government and governance

60. Governance is the process by which societies establish vision and create common goals and objectives. Major trends such as globalisation and the diffusion of ICT are creating new possibilities and affecting traditional governance structures. Today, governance extends from the local to the global level. There are new areas of governance which embrace e-commerce, the governance of knowledge, and of the Internet. There are also new ways to govern which take into account increased decentralisation, democratic processes, greater empowerment of the poor, and citizen-government interactive processes. These include vertical governance approaches with strong civil society input, and efforts to achieve policy coherence. Good governance comprises the processes and structures that ensure open, predictable and transparent government, and business and corporate practices.
61. ICT applications can play effective roles in all these areas if they are developed appropriately. In addition, effective governance structures are needed to cope with the management of global markets and enterprises that are trading far beyond their national boundaries. New partnerships between government, the private sector, and civil society organisations also require innovative forms of governance.
62. Strategic initiatives to foster information societies require high level commitment and leadership and innovative and effective policy. Creating conditions for the empowerment of communities and members of civil society requires the creation of an infrastructure for participation and fostering a sense of citizenship and cultural identity.
63. The development of e-government services raises issues of service provision for those who, for one reason or another are excluded from using them. The G-8 DOT Force has suggested that: 'governments should ensure that all digital opportunity initiatives include specific measures addressing the problems faced by the most disadvantaged segments of society, e.g. rural populations, women, ethnic minorities and people with disabilities'. E-government services are being developed to enhance the internal efficiency and productivity of public administrations. Applications include electronic forms for tax

collection and many other services that involve the provision of public information and databases for health services, as well as e-procurement systems.

2.3 Vehicles for Action

64. These five policy principles point to the need for consensus-building to develop and implement policies for ICT that take account of a variety of developments, locally and globally. The translation of policy principles into policy implementation is always a major challenge. Ensuring that successes are replicable, transportable and scalable is an even greater challenge. It requires creating opportunities to learn from successes and from failures and mistakes.
65. Attention is now focused at the highest levels internationally on the issue of a growing digital divide and on how to encourage measures to take advantage of the opportunities offered by ICT. A large number of institutions is seeking to foster more focused attempts to work with policy makers, entrepreneurs and the private sector, and civil society organisations to ensure that efforts to reduce the digital divide lead to opportunities that are spread equitably between countries and within them. The mobilisation of further efforts by international multi-lateral groups such as the G-8, the United Nations Agencies, the Commonwealth, and others is a very positive development. But it is not without its own risks. The proliferation of actions could stretch the already thin resources of those in less ICT advanced countries by introducing new bureaucratic regimes.
66. Co-ordination to ensure that available resources are maximised and deployed in an effective way is essential. In addition, if ICT strategies are to be firmly embedded in local, national and regional institutions, efforts to address the digital divide must not assume an automatic need for the construction of new institutions. We believe that our Commonwealth Action Programme for the Digital Divide has the strongest possible synergy with existing efforts and that it will maximise the overall impact. Priorities must be set through a co-operative approach to bridging the digital divide. Priorities must also take into account the considerable existing strengths of Commonwealth agencies that are active in this area.

3 CO-OPERATIVE APPROACH TO BRIDGING THE DIGITAL DIVIDE

This Chapter sets out roles of the key players - governments, entrepreneurs and the private sector, and civil society - in building information societies that can benefit from the use of ICT.

- A major role for governments is to create a positive ICT environment.
- There is enormous scope for entrepreneurs and the private sector to tap demand for ICT.
- Civil society organisations have an important role to play in advocating the needs of communities, raising awareness about ICT services and generating opportunities and benefits within communities and at the national level.

3.1 *Creating Information Societies and Bridging the Digital Divide*

67. We believe that every country can capture the positive benefits of ICT's in a manner which would help to bridge the digital divide nationally and internationally. Those countries who have successfully advanced their development as an information society exhibit a common formula for success. In each case, these countries have established comprehensive strategies for creating information societies which : articulate a national vision for each society based on the appropriate use of ICTs for its development; establish the legal and regulatory frameworks necessary to promote the development of telecommunications networks and e-commerce; implement ICT-relevant strategies for human resource development; promote the deployment and use of technical and information infrastructure; and advance the applications of networks and information technologies for e-Government and e-governance. Such strategies are premised on the need to see information and communications technologies operating across a broad spectrum of development occurring in virtually all aspects of the economy and society, and avoid the common fallacy of thinking of ICTs in 'silo-type' terms as strictly relevant to technology-driven sectors of the economy.

68. The strongest foundation for a global plan to reduce the digital divide and enlarge digital opportunity are strong national strategies, effectively implemented by national governments in partnership with the private sector and civil society, and supported by the international community through targeted programmes of mutual co-operation and assistance. We believe that Commonwealth countries and the Commonwealth as an international institution can lead the way in combining national, bilateral and multilateral efforts to maximise the development potential of modern information networks and technologies.

69. Bridging the digital divide requires action at various levels – governments, entrepreneurs, the private sector, civil society. The advancement of ICT is relevant to particular sectors and the new technology also has the potential for affecting change and accelerating development in all aspects of the economy and society. In order to achieve the goal of bridging the digital divide, there is a need to further develop co-operative approaches at all levels and embracing many actors.

3.2 The Role of Governments

70. A major role for governments is to create a positive ICT environment through coherent telecommunication reforms and other ICT policies; frameworks and legislation protecting investment, flourishing e-service suppliers and users; education policies that increase literacy and general management and specialist ICT skills, and effective institutions for developing, implementing and co-ordinating policy.

71. Governments can also play a role in expanding facilities for providing seed money (including micro-lending) for local research and development on low cost technologies and applications that are relevant for users in different countries. They can encourage the establishment of business incubators and entrepreneurial networks. This is an important role for government because it can create opportunities for citizens and businesses to access ICT training and applications and services.

72. Bi-lateral governmental action is as important as multi-lateral action. Co-operative inter-governmental partnerships can assist governments to create enabling national environments through sharing information, technical knowledge and expertise in all aspects of ICT development and application, by supporting ICT assistance programmes, and by encouraging cross-national ICT business networks and inward investment.

73. In particular, governments can play a role in formulating national objectives and strategies for ICT within the wider development context, and establishing public service obligations for ICT actors. For instance, public funding channelled via Commonwealth agencies such as the Commonwealth Telecommunication Organisation and Commonwealth Network for Information for Development are providing considerable support for policy development to bridge the digital divide. National governments can establish appropriate legal and regulatory frameworks and create opportunities for ICT education and training. Governments can champion ICT use through promoting e-government services and facilitate links between government and businesses, and between government and consumers and citizens. By establishing an enabling economic environment, governments can promote private enterprise, help to attract foreign direct investment and encourage domestic investment in the ICT industry.

3.3 The Role of Entrepreneurs and the Private Sector

74. It is always difficult to estimate demand for ICT (whether telecommunication or other e-services and applications) when the potential users have little or no experience of the potential benefits. This creates risks for investors who apply models to calculate their return on investment using assumptions that have proved adequate in the advanced ICT countries. For less ICT advanced countries, such models generate biases in favour of switched network infrastructures in densely populated urban areas and dedicated point-to-point links between hubs of business activities (e.g. in software development), leaving enormous scope for creative ways to tap demand (even if the profitability is unproven using conventional cash flow techniques).
75. There is demand for telecommunication and other ICT services among people with very low incomes. This is evidenced by the growth of small tele-shops, tele-kiosks or 'telecentres' in many less ICT advanced countries. The notion of the 'entrepreneur' need not be restricted to the telecommunication sector, or to commercial activity. The entrepreneurial 'spirit' is at work in many efforts to create information sites. An example of an advanced ICT and a less ICT advanced country partnership is eLink Ltd, established in November 2000 as a new company in Zambia by Coppernet Solutions Ltd and the Institute of International Communication and Development in The Netherlands. Initially, three telecentres are being established through franchises with Zambian entrepreneurs and the capital cost per telecentre is about USD 25,000.
76. The main engine for change and ICT development across the globe is entrepreneurial activity and investment. Entrepreneurs have initiative, ideas and expertise and they are introducing and further developing ICT systems and applications. They are playing an important role in e-commerce start-up firms and in providing education and technical training through local organisations and through their access to global co-operative networks. However, entrepreneurs cannot succeed alone. They find it difficult to scale up their activities to meet their often ambitious targets without additional forms of support. They need to be able to tap into a local research and development base or to access distant networks of scientific and technical expertise. They also must be able manage contractual obligations and the ongoing costs of their services. Financing, and often micro-financing, is critical to their success as is the feasibility of payment for their customers and the eligibility of citizens to benefit from the provision of public services and education.
77. Network externalities are important for entrepreneurial activity. The more effort that is given to building a skills base and awareness of the benefits of services, the greater the opportunities for entrepreneurs to achieve the critical mass of users that leads to a sustainable operation (commercially or from a public sector accountability perspective).

We believe that partnerships and sharing knowledge within the business sector, with government and with members of civil society, are essential for bridging the digital divide.

78. There is also a role for many large Commonwealth-based businesses including the multinational and telecommunication operators as well as software developers to partner with agencies to develop new and relevant ICTs for development. In many cases, the larger organisations can contribute substantially to skills development and training to use ICT as for example in the case of those companies supporting the Commonwealth Telecommunication Organisation's Programme for Development and Training.

3.4 The Role of Civil Society

79. Members of civil society are increasingly supported by non-governmental organisations (NGOs) that are able to link micro-level experience with macro-level policy. Progress in this area requires the strengthening of institutional linkages and improved information flows within and between their constituents, donor agencies, international and national governments and other NGOs. NGOs are reporting that their networking efforts are beginning to make much more systematic use of information systems - both ICT-based and non-ICT-based - in order to improve the flow of ideas, experiences and information across national frontiers between all actors from the grass roots level outwards.
80. Reports of studies of NGOs and their use of ICT show that the vast majority of these organisations make frequent use of phone, fax, and modem-based communication. In addition, many NGOs have information officers with briefs to collect, analyse and disseminate information. Many members of NGOs operating at the local level play intermediary roles between ICT system designers and those who have requirements for all kinds of information (market, business support services, political, social, etc.).
81. NGOs can provide a way for policy makers to access the views of members of civil society. They can help to ensure that vulnerable people, including those on low incomes, lone parents, the elderly, people without qualifications or with low levels of literacy, the unemployed or underemployed, people in areas which lack infrastructure, women and girls, and people with disabilities, have input into policy-making and the development of ICT applications.
82. NGOs are responding to a new vision of 'civil society' where development work is seen to be directed towards the building of a democratic, vibrant civil society which depends on capacity building to extend the existing efforts of the organisations of civil society. While the potential exists for ICT to be used to bring benefits to individuals and communities, it is not yet clear what processes of governance can be used to achieve this. However, civil society has a key role to play in contributing to actions aimed at bridging the digital divide and in developing new ICT opportunities.

3.5 Foreign Investment and Official Development Assistance

83. Capital accumulation in the form of foreign direct investment, investment portfolios or domestic savings is fundamental for economic growth and development. ICT increasingly is at the core of capital accumulation and the management of the economy and wider society. ICTs can be used to help the poor to access financial services and also to attract investment into economies. In some countries, investment in ICT can be used to attract high technology industries or to create new service-related jobs.
84. Examples of investment by the private sector include the Global Service Trust Fund (GSTF) which is focusing on providing broadband access to poor communities through the use of digital satellite, microwave and spread spectrum wireless technologies. Greenstar is providing community centres with wireless Internet connections and community development tools such as medical facilities and education resources. In this case, revenues are generated by the co-development of cultural materials (music, art) that are digitised and marketed in the industrialised countries. Although Greenstar currently has only three sites, it has plans for 300 sites in 60 countries.
85. Official development assistance is also providing financing for many initiatives aimed at bridging the digital divide. A substantial challenge is to ensure that all stakeholders are involved in the planning and implementation of new initiatives. Another is to ensure that official development assistance encourages and creates opportunities for the actions of entrepreneurs and the private sector as well as for representatives of civil society.

4 CURRENT ICT INITIATIVES AND PROGRAMMES AT THE GLOBAL LEVEL

This Chapter shows the scope of current global initiatives and programmes aimed at promoting new digital opportunities in less ICT advanced countries. These initiatives range from the G-8 focus on digital opportunities to initiatives that embrace the full range of older and newer ICT.

- The G-8's DOT Force aims to mobilise action that will contribute to bridging the digital divide; the United Nations agencies are emphasising the importance of ICT for development; the OECD is seeking new means of establishing dialogues with developing countries, and the ASEAN and Mercusul countries, as well as many African partnerships, are giving attention to devising and co-ordinating ICT strategies.
- The Global Knowledge Partnership, the Global Information Infrastructure Commission, The World Bank and others are actively promoting projects to build infrastructure and to employ ICT to address the needs of the poor, and there are numerous national government initiatives and programmes led by the private sector.
- Non-profit organisations and foundations are playing an important and growing role in developing and co-ordinating ICT applications.

4.1 Global Efforts to Mobilise Investment and Partnerships

86. Numerous initiatives are aimed at tackling the digital divide at the global and regional levels. The G-8 Kyushu-Okinawa Summit in July 2000 issued the Okinawa Charter on the Global Information Society and established a Digital Opportunity Task Force (DOT Force) which reports to the G-8 meeting in Genoa in July 2001. The DOT Force aims to mobilise action that will contribute to bridging the digital divide, secure participation by non-members of the G-8; and integrate ICT initiatives within development initiatives. The DOT force has identified actions that should be taken in four areas: 1) fostering policy, regulatory and network readiness; 2) improving connectivity increasing access and lowering costs; 3) building human capacity, and 4) encouraging participation in global e-commerce and other e-networks.

87. The DOT Force has stressed that there are 'no one size fits all' policies and that simply knowing about best practices is not enough. It has set out a (Genoa) Plan of Action to achieve deliverables over a twelve month period.

88. The United Nations agencies including the International Labour Organisation (ILO), the International Telecommunication Union (ITU), the UN Economic and Social Council (UNESCO), the United Nations Development Programme (UNDP), the UN Economic Commission for Africa (UNECA), and the UN Educational, Scientific and Cultural Organisation (UNESCO) are all emphasising the importance of ICT for development. They are taking steps to address the digital divide. The Organisation for Economic Co-operation and Development (OECD) is seeking new means of establishing dialogues with developing countries on policy frameworks for ICT use in key areas such as e-commerce and e-government. The World Trade Organisation and the World Intellectual Property Organisation are two other fora where discussion is focusing on the implications of the global spread of ICT.
89. At the regional level, the European Commission is assessing the contribution that it can make to supporting the role of ICT for development. A European Commission report to the DOT Force emphasised the need to consider multi-cultural approaches, to use the foresight and prospective research capacities of European institutions to consider ways of bridging the digital divide, to learn from existing experience about what works and what does not, and to develop a permanent capacity to monitor the factors contributing to the digital divide. The ASEAN and Mercusul countries are giving increasing attention to devising ICT strategies and, in Africa, there are many efforts to co-ordinate policy and ICT-related initiatives.
90. Other organisations are active as well. For example, the Global Knowledge Partnership consisting of some fifty partner organisations from the public, private and NGO sectors, is co-operating to initiate capacity building, information sharing and project co-ordination in the ICT area. The Global Information Infrastructure Commission is playing a role in fostering policies to advance the development of a global information infrastructure with participation of the private sector and a focus on e-commerce, education, infrastructure and policy and regulatory frameworks. The World Bank has put knowledge management at the centre of its recent strategies aimed at poverty reduction. It is sponsoring the development of an African Virtual University and a Global Development Gateway to facilitate information access and sharing. It also promotes projects that employ ICT to address the needs of the poor.
91. There is a host of nationally-based government initiatives aimed either at encouraging greater ICT development and use within countries or at enabling less ICT advanced countries to introduce new initiatives. USAID's programmes include 'Africa Link' (technical assistance for scientists and policy makers), 'Internet for Economic Development Initiative' (encouraging Internet-based electronic commerce), and the Leland Initiative (to extend Internet connectivity to African states). Australia (AusAID), the United Kingdom (British Council, Department for International Development), Canada (Canadian International Development Agency and International Development Research Centre), and Sweden (Swedish International Development Agency) all have on-going programmes to support

the greater use of ICT for development. The United Kingdom, for example, has launched a new programme, 'Bridging the Digital Divide' with a focus on capacity building in policy making and regulation, sector-based ICT strategies, the development of information resources, and ICT access that relies on digital and older technologies such as radio.

92. Firms such as Microsoft, Cisco Systems and Hewlett Packard are developing ICT training programmes, applications for e-business and for services such as tele-health for developing countries. Non-profit organisations and foundations are playing an important and growing role in developing and co-ordinating ICT applications (e.g. HealthNet, Bellanet, Foundation du Devenir, International Institute for Communication and Development, Markle Foundation, Volunteers in Technical Assistance).

4.2 Examples of Global Initiatives for Building Information Societies

93. Table 5 highlights a selection of high profile initiatives that are aimed at action to support countries to build effective information societies which take advantage of the potential of digital and other ICTs (see also Annex E and Annex F for key Commonwealth agency contributions).

94. In many of these global, regional and national initiatives, a core issue is capacity building. For instance, in the telecommunication field, the ITU is focusing on human capital development in a variety of ways including the development of a global telecommunication university, virtual training centres and Internet training academies as well as senior level training for policy makers, regulators and network operators. The ITU has been active in mobilising co-operation to establish various kinds of telecentres and there are growing numbers of initiatives to provide public access to ICT sponsored by individual countries.

95. Nationally-based organisations are sponsoring information brokering portal services that can be accessed if the technical infrastructure is in place and affordable. Much could be achieved by extending existing initiatives to reach the populations of less ICT advanced countries through creative organisational and investment strategies. For instance, PAN (Pan-Global Networking) is a Canadian initiative sponsored by the International Development Research Centre (IDRC). PAN aims to promote speedy and more efficient access by researchers to the text and multimedia information resources available on the Internet. Special attention is given to communities in poorer countries and remote areas. The initiative also aims to develop capacity in these areas for using the Internet.

Table 5 Global Initiatives to Bridge the Digital Divide

Africa Connection - www.africaconnection.org
Asia-Pacific Development Information Programme (APDIP) - www.apdip.net
Association for Progressive Communications - www.apc.org
British Council – www.britishcouncil.org/index.htm
Canadian International Development Agency (CIDA) - www.acdi-cida.gc.ca/INDEX-E.HTM
Canadian International Development Research Centre (IDRC) Acacia Programme, - www.idrc.ca/acacia
CISCO Networking Academy Program – www.cisco.com/warp/public/779/edu/academy/
Department for International Development (DFID) UK - www.dfid.gov.uk
Digital Partners – www.digitaldivide.org/home.html
Dot force 'Digital Opportunity Task Force - www.dotforce.org
Hewlett-Packard World e-inclusion program - www.hp.com/e-inclusion
International Institute for Communication and Development - www.iicd.org
International Labour Organization (ILO) - www.ilo.org/
International Telecommunication Union (ITU) - www.itu.int/ti ; www.itu.int/ITU-D-TREG
Markle Foundation - www.markle.org/index.stm
Netaid.org - www.netaid.org
OneWorld - www.oneworld.net/campaigns/digitaldivide/index.html
Organisation for Economic Co-operation and Development (OECD) – www.oecd.org
The Global Knowledge Partnership (GKP) - www.globalknowledge.org; gkaims.globalknowledge.org
UN Educational, Cultural and Scientific Organization (UNESCO) – www.unesco.org/webworld/index.shtml
United Nations Development Programme (UNDP) – www.sdnf.undp.org/it4dev/
United Nations Economic Commission for Africa - Bridging the Information Gap in Africa www.uneca.org/programmes_home.htm
USAID Leland Initiative - www.usaid.gov/regions/afr/leland
World Bank Development Gateway - www.development.gateway.org
World Bank Global Development Learning Network - www.worldbank.org/gdln/
World Bank <i>infoDev</i> - www.infodev.org
World Intellectual Property Organization - ecommerce.wipo.int/index-eng.htm

96. The African Connection is developing databases on market trends, laws and regulations for telecommunication and the business environment. Sponsored by the African Telecommunications Union, the aim is to provide Africans with access to information and communication services, to link all African countries and to make Africa a full member of the global information society by the year 2010.

97. Iconnect, a joint initiative of the Dutch International Institute for Communication and Development (IICD) and the Department for International Development (DfID) in the United Kingdom, is providing a jumping off point for information on the application of knowledge and ICTs in sustainable development. The site promotes effective exchange of knowledge and learning on the use of ICTs (and knowledge more generally) in development, so that people who want to use these technologies and approaches are able to do so.
98. Overcoming problems created by a widening gap in the capacity to access and use ICT is likely to benefit some business organisations while others are disadvantaged. Issues of competitiveness and trade must not be the sole focus of efforts to build information societies. Equal attention must be given to the potential of information societies to foster social benefits and cultural achievements and to empower citizens to make choices about the way they conduct their lives.

5 THE COMMONWEALTH'S STRENGTHS

This Chapter outlines the strengths of the Commonwealth in bringing value added to the task of bridging the digital divide based on its commitment to democracy, good governance, and development; on the nature of its relationships and shared experience; and on its related ability to strengthen partnerships for capacity building.

There is a significant institutional capacity already in place assisting the growth of and use of ICTs. This can be further drawn upon for work on the five point action programme identified in the Summary of this report.

- The Commonwealth's strengths lie in its commitment to democracy, good governance and development, in the achievement of which, ICTs have a crucial role to play. Its high level political and other professional, business and people-to-people contacts, its global reach, and its capacity to share experience and expertise in a trusted environment between countries and across various ICT environments (especially in the least developed and small, and small island, states) provide it with a valuable base for taking new initiatives and promoting programmes of co-operation.
- The Commonwealth organisations have a robust body of existing ICT programmes that provide a tried and tested platform for advancing ICT development and application, mobilising resources for ICT-related actions and for reducing the barriers to effective development and use of ICT.
- The core advantage of the Commonwealth is in strengthening partnerships for sharing information and expertise for capacity building.
- Action is needed to assist in the accumulation and dissemination of knowledge within less ICT advanced countries with a focus on appropriate ICT applications that are responsive to the needs of users in the public, private and civil sectors of society.

5.1 The Commonwealth's Comparative Advantage

99. Given the global initiatives currently underway, is there value added in the Commonwealth developing a greater role in the bridging of the digital divide? We are convinced that the Commonwealth and its members possess unique characteristics and strengths, which enable it to respond to several dimensions of the digital divide. This conviction is rooted in our observation of the strengths of the association underlying the Commonwealth, its deep commitment to democracy, good governance and sustainable development, and its capacity to share experience and expertise in a trusted environment between countries

and across various levels of ICT development (especially in the least developed and small, and small island, states). This tradition of mutual assistance and support is strongly shared both within and among Commonwealth peoples.

100. In the light of our understanding of the comparative strengths of the Commonwealth and the institutional capacities that already exist in the association in the ICT area, we are convinced that the Commonwealth can add value within the five point action programme that we have commended. The reasons for our conviction may be stated briefly as follows:

- The Commonwealth is an association of 54 countries covering 1.7 billion people, bound by a shared commitment to democracy, good governance and sustainable development. ICTs have a critical contribution to make in the achievement of these objectives. The bridging of the digital divide is thus of natural interest to its members.
- The high level political contact that the Commonwealth enjoys, through the biennial meetings of its Heads of Government and other regular meetings of Ministers and senior civil servants, position it well for advocacy and promotion of ICTs among its member countries. The flexible and informal ways in which its institutions work, and the sense of trust that informs its relations, in which all members are equal, provide it with a valuable base for developing new initiatives, and to act as an incubator in sensitive policy areas.
- As its members cut across the North-South divide, and have a wide international reach by virtue of their position in important regional or specialist groupings such as the G8, G15, OECD, OAU, CARICOM, and the SADC, the Commonwealth is well-positioned to promote international consensus and programmes of action building on the positions reached within the Commonwealth, as is illustrated in the context of the HIPC Initiative where the Commonwealth played a lead role. This is no small advantage in a world where the processes of reaching international agreements can be protracted.
- The Commonwealth enjoys a rich network of contacts at professional, civil and people-to-people levels. It is more than its intergovernmental relations and institutions. This provides the association with an easy facility for addressing developmental and civil society issues, for implementing practical projects, and for acting as a conduit for applying and promoting ICT use in a manner that gives its use a wide reach.
- ICTs can play a significant role in facilitating better communication and networking within the Commonwealth, whose life-blood consists of nurturing communication and links among the governments and peoples of the Commonwealth (e.g. communication among Commonwealth parliamentarians, trade officials, and educationalists). Greater use of ICTs can make the Commonwealth more effective in its own functioning, and thereby make the association more valuable. The fact that English is a common language among Commonwealth countries enables ICTs to work even faster in assisting communication within the Commonwealth.

- Its ability to relate to, and work with, different sectors and agencies enables the Commonwealth to forge partnerships between governments, businesses, and civil society organisations, and between Commonwealth and international agencies (e.g. Commonwealth Private Investment Initiative, which promotes private investment flows to Commonwealth developing countries; the joint Task Force with the World Bank to address the problems of vulnerability of small states). This quality also can be a great help in an area such as developing ICTs because spreading their use means that agencies working in partnership is of great importance.
 - Its shared inheritance in institutions (e.g. legal and governmental structures) and the rule of law puts the Commonwealth in a strong position to develop models of good practices and regulatory frameworks for wider adoption, thus facilitating the development of standards that are propitious for enterprises and investment, and for greater use of ICTs.
 - The Commonwealth contains diverse developmental experience, providing opportunities for learning from each other, including in the area of ICTs. It also contains a rich reservoir of experts in ICT and related areas, enabling it to mount programmes of mutual assistance in the ICT area with great ease. Commonwealth experts working in other Commonwealth countries can hit the ground running. This is amply borne out by its track record of providing practical help in *capacity building* through its policy advisory and technical assistance work.
 - More than half of the Commonwealth countries are small, often island, states and several are among the least developed countries. These countries face very difficult constraints in developing their ICT capacities. This means that the Commonwealth can play a crucial role in disseminating initiatives that have proven successful elsewhere, and help tailor them to local conditions to yield practical and beneficial results.
101. A considerable number of current Commonwealth initiatives and programmes already involve sharing knowledge for policy development and application, advocating best practices in the design and use of technologies for many different sectors, and creating frameworks for co-ordinating initiatives to build common institutions and administrative processes facilitated by the use of the English language. Existing Commonwealth organisations (e.g. COL, CTO, CFTC, COMNET-IT) have substantial and relevant expertise on the development of ICT applications for a wide variety of purposes. The Commonwealth, therefore, already possesses an institutional architecture that could be easily deployed to do more in advancing the use of ICTs in developing member countries.

5.2 Current Commonwealth Initiatives: A Description

102. Commonwealth governments with expertise and human and financial resources in the ICT area are working together with those with limited ICT capacity. These programmes seek to develop partnerships at various levels and with many in-country partners to create an enabling environment for ICT development and application, and to contribute to bridging the digital divide. The similarity of institutions and legal frameworks, and the trust and goodwill that are the hallmarks of Commonwealth relationships, provide scope for advancing ICT development and application initiatives through bi-lateral programmes of assistance; and some initiatives are currently underway. Many Commonwealth initiatives are using ICT to support social and economic development initiatives.
103. Recognising the diverse range of ICT programmes implemented by a number of Commonwealth agencies, the Expert Group wrote to Commonwealth organisations with an interest in promoting the development and use of ICT, requesting information on programmes and projects. A number of other Commonwealth agencies from which information was not available also engage in ICT activities. The information provided below, therefore, provides only a partial picture of Commonwealth work and potential in advancing ICTs to create information societies.
104. Commonwealth agencies are already actively promoting ICT development and application through a wide range of technical assistance and policy advice to Commonwealth governments, industry and civil society within and beyond the five initiative streams recommended for Commonwealth action (*see Executive Summary*). Several of the agencies have a wide range of ICT expertise which provides a robust foundation for the further development of a Commonwealth ICT programme.
105. The programme budgets of the Commonwealth agencies presented above – many of which have an exclusive or primary focus on ICT or ICT related programmes – amount to some £15.1 million per annum. Some £7.73 million of these funds (51%) is dedicated specifically to ICT activities. The existing focus of Commonwealth agency work programmes within the framework of the five initiative streams recommended in the Executive Summary of this report are presented below.

5.2.1 Telecentres as Knowledge Shops

106. Commonwealth agencies are actively involved primarily in the development of innovative models and strategies for establishing telecentres, in partnerships with developmental agencies across the Commonwealth, providing public access points on a limited basis for accessing information and as a means for mobilising support for and commitment to ICT use within society. The Commonwealth of Learning (COL) and the Commonwealth Youth programme (CYP) have established telecentres to empower individuals through the ability to access information, educational and literacy programmes (ICT and generic). Though limited resources constrain the number of facilities the organisations can establish,

strategic partnering with donors and the private sector has enabled innovative public access points to be set up and supported with the involvement of the local community.

5.2.2 ICT Policy Resource Centres

107. Commonwealth agencies have substantial experience in developing replicable sectoral policies and strategies. In the area of ICT, the Commonwealth Telecommunication Organisation (CTO), Commonwealth Network for Information Technology for Development (COMNET-IT) and the Commonwealth Business Council (CBC) each have programmes targeted at different, though often overlapping, audiences including government officials, Industry and e-commerce institutions and entrepreneurs. Not only do these agencies provide technical support in developing ICT policies and application strategies, they also have established mechanisms and programmes for facilitating their exchange and adapted replication. COMNET-IT also partners with in-country institutions dedicated to the development of ICT policy and strategies across the Commonwealth. The Commonwealth Secretariat, through the work of the Legal and Constitutional Affairs Division, provides strategic assistance to governments in developing the legislative framework for the ICT sector and for policies, particularly in the area of e-commerce.

5.2.3 Skills for ICT Development and Use

108. The deficiencies of the existing skills base in all countries are creating many difficult problems. These are exacerbated in the poorest countries and in those small or island states with a small base of competency to build upon. Commonwealth agencies are already playing a considerable role in the provision of training and education in ICT skills. For example, the Commonwealth of Learning (COL) is directly involved in measures to use ICT to support the expansion of education opportunities. Particular emphasis is being given to the use of electronic mail, presentational software, the World Wide Web, and multimedia and CD-ROM (despite the high development costs in the latter case). The COL also uses print, radio, audio cassettes, video and video cassettes or the telephone to deliver education and training. Over ten years, the COL has built a network of partners and allies who can support the management of knowledge, its movement, production and mastery supported by a wide range of ICT.

109. The CTO has a comprehensive training programme to build a skills base that can support sustainable ICT development and application which is delivered through workshops and seminars for policy makers and service providers; COMNET-IT provides a similar training programme for policy makers; the Commonwealth Association of Public Administration and Management (CAPAM) and the Commonwealth Secretariat, through the work of the Management and Training Services Division (MTSD), delivers a comprehensive informatics programme through which public service workers are trained to use ICT as an effective information, management and administrative tool. The CYP has

established a technical centre at its Asia Centre that provides ICT development and application skills training to young people in collaboration with the private sector.

5.2.4 e-Government

110. The Commonwealth Centre for Electronic Governance (CCEG) assists governments to develop knowledge management systems for the public service to enhance public administration and service delivery, with a secondary focus on ICT application to data protection and privacy and record management practices. COMNET-IT provides skills training to government officials for the setting up and management of e-government services, and develops products for sharing good practices in this field. The CTO also has expressed interest in providing skills training for e-governance to government officials as part of its services. The Commonwealth Secretariat through the work of the MTSD has a comprehensive training programme for officials in the area of e-governance.

5.2.5 Knowledge Networking for Information, Innovation and Professional Development

111. The Commonwealth Science Council (CSC) has developed a Commonwealth Knowledge Network (CKN) in the area of science and technology, with a Commonwealth knowledge bank of data and information; it supports national development of such databanks and uses the CKN as a means to find innovative solutions to problems through access to information and networking knowledge. It is using ICT to enhance innovative capacity, facilitate technology brokering, and establish ownership of traditional knowledge so that disputes on intellectual property rights can be resolved; it is facilitating bio-partnerships between countries, and improving productivity and profitability. The CSC provides training for government officials in CKN management and use, and works in partnership with COMNET-IT and other institutions within the Commonwealth.

112. The Commonwealth Telecommunication Organisation (CTO) has a programme - Bridging the Digital Divide - which from May 2001 is providing funding for capacity building in policy making and regulation and this extends to e-commerce and e-governance issues. Another CTO programme in the development and training area is supporting 200 bilateral technical co-operation or experience sharing projects per year.

113. CAPAM and the Commonwealth Secretariat, through the work of MTSD, also supports a knowledge networking programme providing assistance to governments to capture, store and apply knowledge and information within the public sector, thereby supporting public sector reform and restructuring strategies.

Conclusion

114. We believe that the lack of ready access to ICT's is a multi-faceted and growing phenomenon, which impacts development at many levels - social, economic, civic and

cultural, and relates to a wide range of developmental priorities and concerns. Thus, in our opinion, an effective response to the digital divide demands strategic and co-ordinated action from governments, the private sector and civil society, nationally and internationally. The Commonwealth and its members can play a key part in such a plan of action

115. Building on the Commonwealth's strengths, we believe that the association and its members can significantly influence the deployment of ICTs for development and help to bridge the digital divide. This can be accomplished both by taking strategic action itself and by facilitating effective action by others, including governments, other development agencies, civil society, and the private sector, especially entrepreneurs. Indeed, in our view, access to the benefits of advanced information and communications technologies should form a central element in designing the Commonwealth's agenda for the 21st century.

116. The Commonwealth community already possesses a number of instruments for the promotion and application of ICT. Greater overall strategic leadership for, and political commitment to, Commonwealth-wide information society initiatives will build on the achievements to date. We believe that the value of Commonwealth agencies' work can be enhanced by ensuring that their work is strategically directed, prioritised, efficiently co-ordinated and effectively resourced.

BIBLIOGRAPHY

- Accenture, 'Rhetoric vs. Reality - Closing the Gap', Accenture, 2001, http://www.accenture.com/xd/xd.asp?it=enWeb&xd=industries/government/gove_stu_dy.xml, accessed 15 April 2001.
- Analysys 'The Networking Revolution and the Developing world' report prepared for the World Bank, August 2000, Cambridge UK, <http://www.infodev.org/library/400.doc>, accessed 30 March 2001.
- Benjamin, P. 'Lessons from Community ICT in South Africa', Prepared for meeting of Commonwealth Expert Group on Information Technology meeting, Cape Town, March 2001.
- Butcher, N. 'Distance Education in Developing Countries', Imfundo Knowledge Bank Paper 3, 15 December 2000, <http://www.imfundo.org/butcherthree/contents.htm>, accessed 30 March 2001.
- Canadian Information Highway Advisory Council, 'Preparing Canada for a Digital World', Ottawa, 1997, <http://strategis.ic.gc.ca/SSG/ih01650e.html>, accessed 30 March 2001, see Chapter 8, 'Government as a Model User'.
- Commonwealth of Learning, 'Report to Commonwealth Heads of Government Meeting', November, 1999, <http://www.col.org/chogm99.htm>, accessed 30 March 2001.
- Commonwealth of Learning, 'Education and Training: The Impact of ICTs and the Role for the Commonwealth of Learning', 23 February 2001, prepared for the Commonwealth Expert Group on Information Technology meeting, Cape Town, March 2001.
- Commonwealth Secretariat, 'Electronic Commerce: Its Growing Importance in Trade and the Development of the use of Cyberspace for Commercial and Financial Transactions', Combinet Series Papers 001/2000, prepared for the CHOGM, Durban, 1999.
- Commonwealth Telecommunication Organisation, 'Information and Communication Technologies in the Commonwealth', A report for the IT Expert Group established by the Commonwealth High Level Review Group on the Future of the Commonwealth, London, March 2001.
- Commonwealth Working Group on Electronic Commerce, 'Draft Strategy Paper - E-Commerce in Commonwealth Countries: 'Making IT Happen'', December 2000, A joint Project of the Commonwealth Secretariat and Commonwealth Business Council.

- DOT Force, 'Global Bridges: Digital Opportunities' Draft report of the dot force for discussion at Cape Town meeting, 1-2 March 2001, <http://www.dotforce.org/reports/dotforce-draft-report-v1.doc>, downloaded 30 March 2001.
- DOT Force, 'Digital Opportunities for All: Meeting the Challenge', report of the Digital Opportunity Task Force including a proposal for a Genoa Plan of Action, 11 May 2001.
- Espitia, D. 'Telecentres as a Key Strategy for Bridging the Digital Divide', Prepared for meeting of Commonwealth Expert Group on Information Technology, Cape Town, March 2001.
- Farrell, G et al. (eds.) *The Development of Virtual Education: A Global Perspective*, for the Commonwealth of Learning and co-funded by DfID, 1999, <http://www.col.org/virtualed/>, accessed 30 March 2001.
- Girardet, G. 'The Case for Public Access', presentation to the Commonwealth Expert Group, Cape Town, 6 March 2001 at http://uk.brief.case.yahoo.com/guy_girardet, accessed 15 April 2001.
- Government of Andhra Pradesh, 'AP FIRST Information Technology Policy-2000', <http://www.ap-it.com/itpolicydocjuly.doc>, accessed 30 March 2001.
- Grace, J. et al. for World Bank, Information and Communication Technologies and Broad-Based Development: A Partial Review of the Evidence, prepared for the World Bank, draft report, 14 February 2001, <http://wbln0018.worldbank.org/ict/resources.nsf/eDocsPublications?OpenView>, accessed 30 March 2001.
- Heeks, R. (1999) 'Information and Communication Technologies, Poverty and Development', Development Informatics Working Paper Series, Paper No. 5, IDPM, Manchester, June 2000, <http://www.man.ac.uk/ipdm>, accessed 15 April 2001
- Heeks, R. 'Information Age Reform of the Public Sector: The Potential and Problems of IT for India', Information Systems for Public Sector Management Working Paper 6, 1998, published with support of COMNET-IT], http://www.man.ac.uk/idpm/idpm_dp.htm#isps_wp, accessed 30 March 2001.
- IDRC, 'The Acacia Initiative – Communities and the Information Society in Africa', http://www.idrc.ca/institution/e1_acacia.html, accessed 30 March 2001.
- International Telecommunication Union, 'Conclusions and recommendations from ITU-sponsored First World Tele-Education Symposium for Developing Countries', Manaus, Brazil, 26-29 June 2000, <http://www.itu.int/ITU-D-HRD/hrdevents/teleduc/>, accessed 30 March 2001.

- IPTS, 'The Digital Divide - A Research Perspective: Report to the G8 Digital Opportunities Task Force', European Commission, DG JRC-IPTS, 31 March 2001.
- KPMG, 'The Impact of the New Economy on Poor People and Developing Countries: Final Report', London: KPMG report prepared for the Department for International Development, 12 July 2000
- Lund, H. 'Bridging the Gap? - Access to Internet and Email in Universities in Developing Countries', 1998 Association of Commonwealth Universities, <http://www.acu.ac.uk>, accessed 30 March 2001 (£15 charge).
- Mansell, R. and Wehn, U. (Eds) *Knowledge Societies: Information Technology for Sustainable Development*, Oxford: Published for the United Nations Commission on Science and Technology for Development by Oxford University Press, 1998 downloadable at: <http://www.sussex.ac.uk/spru/ink>.
- Miller, D. and D Slater, *The Internet: An Ethnographic Account*, Berg, Oxford, 2000.
- OECD, 'Information Technology as an Instrument of Public Management Reform: A Study of Five OECD Countries', Public Management Committee, <http://www.oecd.org/dsti/sti/it/ec/> accessed 25 June 2000.
- OECD, 'Understanding the Digital Divide', Paris, 2001, http://www.oecd.org/dsti/sti/prod/digital_divide.pdf, accessed 30 March 2001.
- Parthapan, B. 'Kerala evolving new vistas in e-governance' *The Hindu*, 26 May 2000, See www.indiaserver.com/thehindu/2000/05/26/stories/0426211w.htm, accessed 30 March 2001.
- Primo-Braga, C. et al., 'The Networking Revolution: Opportunities and Challenges for Developing Countries', *infoDev*, *infoDev* working paper produced by Global Information and communication Technologies Department, The World Bank Group, Washington DC, June 2000, <http://www.infodev.org/library/NetworkingRevolution.pdf>, accessed 30 March 2001
- Rodriguez, F. and Wilson III, E. J. (2000) 'Are Poor countries Losing the Information Revolution?', Washington DC: Global Information and Communication Technologies Department, The World Bank Group, *infoDev* Working Paper, May 2000
- Souter, D. and G. Girardet, 'Imfundo Project Knowledge Bank Question 13: Regulatory Frameworks', report prepared by Commonwealth Telecommunication Organisation, 2001, <http://www.imfundo.org/souterthirteen/contents.htm>, accessed 15 April 2001.
- Stavrou, A. 'Non-Government Organisations and the Digital Divide: Implications for South Africa', Submission to Commonwealth Expert Group on Information Technology, Cape Town, March 2001.

- TeleCommons Development Group, 'Rural Access to Information and Communication Technologies: The Challenge for Africa, 2000', IBRD/World Bank report prepared for the African Connection Secretariat, <http://www.telecommons.com/documents.cfm>, accessed 30 March 2001.
- UNDP Technology Revolution Study, Washington DC 1995, <http://www.undp.org/comm/page6.htm> and <http://www.undp.org/comm/page18.htm>, accessed 30 March 2001.
- UNDP, *UN Human Development Report 1999*, chapter 2 'New Technologies and the Global Race for Knowledge', <http://www.undp.org/hdro/Chapter2.pdf>, accessed 30 March 2001.
- W'O Okot-Uma, R. 'Electronic Governance: Reinventing Good Governance', n.d., Commonwealth Secretariat, <http://www.cddc.vt.edu/digitalgov/gov-publications.html>, accessed 5 April 2001.
- W'O Okot-Uma, R. 'Commonwealth Initiative on the Delivery of Comprehensive National Information Technology Strategies: A Checklist for Individual Country Initiatives, Commonwealth Secretariat, London, April 2000.
- W'O Okot-Uma, R. 'National IT Strategies: Selected Perspectives for Good Practice in Public Sector Management', Commonwealth Secretariat, London, prepared for A Regional Initiative for Informatics Strategies, Kingston, Jamaica, 3-5 April 2001.
- World Economic Forum proposals to Kyushu-Okinawa G8 summit July 2000, <http://www.weforum.org/digitaldivide.nsf>, accessed 30 March 2001.

COMMONWEALTH EXPERT GROUP ON IT: MEMBERS

Mr Andile Ngcaba
Director General
Department of Communications
Pretoria
SOUTH AFRICA
Chairperson

Mr. Michael Moynihan
Director
Department of Communication, Information
Technology and the Arts
Canberra
AUSTRALIA

Mr. S R Das
Director
Ministry of Information Technology
New Delhi
INDIA

Mr. Henry Alamango
Executive Director
Commonwealth Network for Information
Technology for Development
Malta
MALTA

PAPUA NEW GUINEA¹

Mr. Theo Mlaki
Director of Information
Tanzanian Commission for Science
and Technology
Dar es Salaam
UNITED REPUBLIC OF TANZANIA

Mr. Kenwyn Austin
Director, E-Government
National Information Systems Center
Port of Spain

TRINIDAD and TOBAGO

Mr. Anson Chua Choo Ann
Director
Information Management Directorate
Ministry of Foreign Affairs
SINAGAPORE

Mr. Russell Southwood
Editor, News Update
Balancing Act Ltd.
London

UNITED KINGDOM

Dr. Fortune Mhlanga
Director of Informatics & Electronics
Institute Scientific and Industrial Research
Development Centre
Harare
ZIMBABWE

Mr. Richard Simpson
Director General
Electronic Commerce Industry
Ottawa, Canada

COMMONWEALTH SECRETARY GENERAL'S NOMINEE

COMMONWEALTH SECRETARIAT

Dr. S K Rao
Director
Strategic Planning and Evaluation Unit

Ms S Raju
Senior Planning Officer
Strategic Planning and Evaluation Unit

¹ The Expert from Papua New Guinea was not able to attend the IT Expert Group meetings.

ANNEX B

CURRENT COMMONWEALTH ICT INITIATIVES

1. Many Commonwealth initiatives are using ICT to support social and economic development initiatives. Some of the salient activities are listed in Table 1¹ below:

Table 1 Commonwealth Existing Capabilities for ICT

Agency	Current Areas of Activity	Total Budget £ per annum	ICT Budget £ per annum	ICT Budget as Percentage of Total Budget
Commonwealth Telecommunications Organisations	<ul style="list-style-type: none"> • ICT Policy Resource Centres • Skills for ICT Development & Use • Telecentres as Knowledge Shops • E-Government 	4 million	4 million	100.0
Commonwealth Of Learning	<ul style="list-style-type: none"> • Skills for ICT development & use • Telecentres as Knowledge Shops • Knowledge Management 	3 million	2.5 million	83.0
COMNET-IT	<ul style="list-style-type: none"> • ICT Policy Resource Centres • Skills for ICT Development & Use • E-Government 	250,000	250,000	100.0
Commonwealth Business Council	<ul style="list-style-type: none"> • All Areas 	2 million	500,000	25.0
Commonwealth Association for Public Administration and Management	<ul style="list-style-type: none"> • Skills for ICT Development & Use • Knowledge Networking 	300,000	30,000	10.0
Commonwealth Centre for Electronic Governance	<ul style="list-style-type: none"> • E-Government 	50,000	50,000	100.0
Commonwealth Secretariat <ul style="list-style-type: none"> • <i>Commonwealth Youth Programme – Asia & South Pacific Centres</i> • <i>Commonwealth Science Council</i> • <i>Legal & Constitutional Affairs Division</i> • <i>Management and Training Services Division</i> 	<ul style="list-style-type: none"> • Telecentres as Knowledge Shops • ICT Policy Resource Centres • Skills for ICT Development & Use • E-Government • Knowledge Networking 	5,475,302	495,000	9.04

2. Existing Commonwealth organisations have substantial and relevant expertise on the development of ICT applications and on the development of software applications for a wide variety of purposes.

¹ This table is illustrative rather than comprehensive, and is based on information available to the Commonwealth Secretariat at the time of writing the Report.

ANNEX C

INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE COMMONWEALTH

This Annex contains Part A of 'Information and Communication Technologies in the Commonwealth', a report for the ICT Expert Group established by the Commonwealth High-Level Review Group on the Future of the Commonwealth prepared by the Commonwealth Telecommunications Organisation (CTO) in March 2001. Part B of the CTO report contains Annexes A through E and these are referred to in the main body of report. These CTO report Annexes are not included in this Annex to the Expert Group Report, but they may be obtained by contacting the CTO directly at **Clareville House, 26/27 Oxendon Street, London SW1Y 4EL, UK, Tel: +44 20 7930 5511 Fax: +44 20 7930 4248, Email: info@cto.int WWW: <http://www.cto.int>.**

EXECUTIVE SUMMARY

1. This report has been prepared for the IT Expert Group appointed by Commonwealth Heads of Government, as part of the 2000/2001 High-Level Review of the Future of the Commonwealth.
2. It provides the following information about ICTs (information and communication technologies) in the Commonwealth and beyond:
 - single-page profiles of ICT development in individual Commonwealth countries (**Annex A**);
 - detailed statistical information about ICTs in the Commonwealth to support these profiles (**Annex B**);
 - notes on planned restructuring of telecommunications notified to the World Trade Organisation (WTO) (**Annex C**);
 - brief notes on digital initiatives undertaken by other international agencies (**Annex D**);
 - comments by Ministers of Communications on priorities for individual countries and for the Commonwealth (**Annex E**).
3. The accompanying report sets out background information about ICTs and development, and makes a preliminary assessment of the Commonwealth data presented in these annexes.
4. There are two main aspects to the issue of ICTs and development:
 - the Digital Opportunity – the potential of ICTs for enhancing delivery of development and individual goals;
 - and the Digital Divide – the risk that access to ICTs will be inequitable and increase differences between rich and poor countries and individuals.
5. Section 1 of the report demonstrates the very rapid increase in use of ICTs, which is focused in industrial and middle-income countries, particularly the rapid development of new parts of the market such as mobile telephony and internet.
6. It illustrates the large gulf that currently exists in usage of ICTs between industrial/OECD and developing countries, particularly Less Developed Countries (LDCs) – a gulf that is as apparent within the Commonwealth as within the world community as a whole.
7. It also illustrates the substantial variation in ICT access and usage within particular geographical regions, for example Southern Africa, and sets out some preliminary benchmarks for Commonwealth countries against their regional peers.

ANNEX C Cont'd.

8. It draws attention to some of the key issues concerned with the digital divide within countries – in particular, the differences between urban and rural areas, and between different social categories. It points out that the official data allow only an imperfect picture to emerge of these differences.
9. It also gives a picture of the pace and impact of restructuring of the communications sector which is currently taking place.
10. The report does not include a full analysis of the Commonwealth data. Further analysis will be presented to the Expert Group at its meeting in Cape Town; and a full detailed analysis could be carried out if required.
11. Section 2 of the report comments on the limitations of existing data and suggests some ways in which new indicators could be developed which would more provide more effective input into policymaking on ICTs and development. In particular, it suggests the development of an 'Information Society Index' and of an index measuring ICT preparedness. It also stresses the need for official statistics to be supplemented by more detailed and specific research.
12. Section 3 of the report summarises other initiatives which are currently being undertaken on ICTs and development by other international agencies and by Commonwealth bodies.

CONTEXT AND METHODOLOGY

Context

13. This report has been prepared for the second meeting of the Expert Group on Information (and Communication) Technology established by Commonwealth Heads of Government as part of the 2000/2001 High-Level Review on the Future of the Commonwealth. The Expert Group's terms of reference are:
 - *to examine the constraints preventing the wider adoption of ICT in developing countries and possible ways of overcoming them, and*
 - *to identify the objectives, which may include the strengthening of existing institutions active in this area, and activities, possibly undertaken in synergy with the UN, the G8, other intergovernmental institutions and the private sector, of a proposed Commonwealth mechanism which could promote the wider use of ICT in Commonwealth countries, particularly in small states and developing countries.*

ANNEX C Cont'd.

14. The report was commissioned from the CTO (Commonwealth Telecommunications Organisation), on behalf of the Expert Group, by the government of the United Kingdom, to provide background information for the Group's deliberations, with the following terms of reference (TORs):

- *benchmarking of the Digital Divide in Commonwealth countries, using existing indicators;*
- *mapping the main organisations – Commonwealth and others – tackling the Digital Divide to prevent overlap by providing an overview and brief thumb-nail sketches of policy, programme priorities, geographical emphasis and budget commitments in this area;*
- *analysing the limitations of existing indicators to identify conceptually how new ones might be created and information captured to make them usable.*

15. Information on these aspects of the Group's remit is attached in annexes to this report. The covering report includes some preliminary analysis of the data, which will be supplemented in an oral presentation at the Expert Group's meeting on 6 March 2001. It is not, however, intended to provide a comprehensive analysis; nor does the report offer recommendations to the Group.

16. The report has been prepared by the following team within the CTO:

- Dr David Souter, Executive Director
- Mr Guy Girardet, Special Adviser Development Programmes
- Ms Isabel del Arbol Stewart, Special Projects Assistant

with involvement by Dr S.K. Rao and Ms Sabhita Raju of the Commonwealth Secretariat.

Methodology

17. This report includes five sets of data focused on the terms of reference set out above, together with a commentary using these data to illustrate some key issues concerning the potential of Information and Communication Technologies (ICTs) and the risks of a developing 'Digital Divide'. The data are presented in five annexes, as follows:

18. **Annex A** presents one-page summaries of ICTs within each Commonwealth country, derived from the latest available published data. More comprehensive data on each country are provided in a spreadsheet attached as **Annex B**. These data provide information to assist in 'benchmarking the Digital Divide in Commonwealth countries' (TOR 1 above).

ANNEX C Cont'd.

19. **Annex C** supplements the country information in Annexes A and B by giving details of commitments to restructuring of the communications sector which Commonwealth countries have given to the World Trade Organisation.
20. **Annex D** presents one-page summaries ('brief thumb-nail sketches', TOR 2) of the programmes and activities of other current international initiatives on ICTs and development and on the issue of the 'Digital Divide'. These summaries are derived from published sources, including the websites of relevant organisations and initiatives.
21. Annex D also includes summaries of programmes and activities in this area undertaken by some Commonwealth agencies. In addition, a questionnaire was addressed to Commonwealth agencies as part of the preparation of this report, and some information from responses to this questionnaire is included in the annex.
22. A second questionnaire, concerning issues of ICT policy development and prepared in conjunction with the Commonwealth Secretariat, was addressed to Ministers of Communications in Commonwealth countries. The timescale for replies to this questionnaire was necessarily short, and responses are still being received. Extracts from those received to date, concerning governments' own priorities and their views on priorities for the Commonwealth, are set out in **Annex E**.
23. A word of caution needs to be included with these data. Statistics concerning ICTs change quickly, particularly in newer market segments such as mobile telephony and internet. So, in a period of rapid industry restructuring, do government policies. The data presented in Annexes A and B, in particular, are derived from published sources where the latest available information usually relates to 1999, sometimes 1998. Things will inevitably have changed, particularly in relation to mobile and internet sectors. Information about sector policy and restructuring in individual countries is also derived from the latest international published sources, and may not therefore reflect developments in the last two years. It has not been possible, in the very short time available, to update these statistics by direct enquiry of governments and communications businesses (even supposing that more recent, reliable statistics are available), or to counter-check the main published data with alternative sources. Where possible, the CTO intends to pursue these enquiries and update the data in Annexes A and B within the remainder of the Expert Group's timetable.
24. This is, nevertheless, the first time that specifically Commonwealth data-sets of international ICT statistics have been produced, giving the latest available Commonwealth-wide snapshot of the state of play in Commonwealth countries, and enabling direct comparison between the Commonwealth and world or other regional groupings. The CTO intends to maintain and develop these data-sets in future.

MAIN REPORT

1. The main report covering these annexes sets the available data in the context of broader information about the 'Digital Divide' drawn from external sources. It is intended to facilitate discussion by the Group, rather than to suggest any particular conclusions, which would require a full analysis of the data, beyond the scope of the terms of reference for this report. It draws attention, however, to some of the key issues in the current 'Digital Divide' debate and their implications for the Commonwealth through some preliminary analysis of the data in the annexes and suggests that more comprehensive analysis would be fruitful.
2. **Section 1** summarises the main issues arising from the development of ICTs, and illustrates the characteristics of the 'Digital Opportunities' and potential 'Digital Divide' at global level, and is intended primarily to provide background within which analysis of the Commonwealth data can be made. It also presents preliminary findings from the research which has been undertaken for this report, which illustrates some aspects of the 'Digital Opportunities' and 'Digital Divide' with reference to Commonwealth regions and countries. This includes some preliminary comparison of Commonwealth countries' experience with that of the world community as a whole (and of Commonwealth regions with their broader regional counterparts). A fuller presentation including more analysis derived from this research will be made to the Expert Group at its meeting, and the CTO would be prepared to undertake a comprehensive analysis of the data for the Expert Group if required.
3. **Section 2** addresses the third of the terms of reference set for the report – to analyse 'the limitations of existing indicators to identify conceptually how new ones might be created and information captured to make them usable.'
4. **Section 3** summarises other international initiatives in ICTs, including Commonwealth activities, and draws attention to some issues which the research suggests the Group might usefully consider. It also suggests areas in which further analysis might be fruitful.
5. As requested, the text report has been kept to a maximum of approximately 30 pages. Additional material analysing the Commonwealth data will therefore be presented at the Cape Town meeting of the Expert Group on 6 March 2001.

Acknowledgements

6. The CTO acknowledges the assistance received in planning and preparing this report from Dr S.K. Rao and Ms Sabhita Raju (Commonwealth Secretariat), Mr Tony Humphries (UK Foreign & Commonwealth Office), Mr Russell Southwood (UK representative to the Expert Group), Mr Keith Yeomans and Professor Robin Mansell of the London School of Economics. We also acknowledge inclusion of findings from research commissioned by

the CTO and undertaken by an M.Sc. project team at University College London under the supervision of Professor Andy Valdar; and of analytical material from the ITU.

SECTION 1: DIGITAL OPPORTUNITIES OR DIGITAL DIVIDE –THE MAIN ISSUES

7. Information and communication technologies (ICTs) are at the heart of one of today's most vibrant development policy debates. Many international agencies – from the World Bank to the European Union, UNDP to the Commonwealth – are seeking to identify how they can harness the potential of ICTs for development and how to address the potential inequities that are generally described by the term 'digital divide'.
8. This engagement of the international community with ICTs is relatively new. Until recently, many development agencies in particular considered ICTs less important than other economic/infrastructure sectors in development policy and delivery, and gave little priority to the need for access to telecommunications and information technology in low-income and disadvantaged communities.
9. This has changed recently for four main reasons:
 - wider recognition of the role which ICTs play as basic instruments for more efficient implementation of a wide range of development and other economic objectives;
 - recognition of the contribution which communications infrastructure, in particular, makes in generating economic growth through facilitating external investment and local entrepreneurship;
 - the emergence of the Internet, offering a far wider range of services than previously available – and, more recently, of electronic commerce and e-government;
 - and concern that developing countries and/or citizens on low incomes will fall further behind their richer counterparts if they do not have access to the benefits which ICTs can bring.
10. Responses by Ministers of Communications to the questionnaire issued as part of this research indicate that governments share these views. All responses received to date regard ICTs as increasingly important to social and economic development and to the effectiveness of their governments' own work, and expect this importance to increase further. A summary of their priorities can be found in Annex E.
11. There are two main themes in the debate currently being held within the international community:

ANNEX C Cont'd.

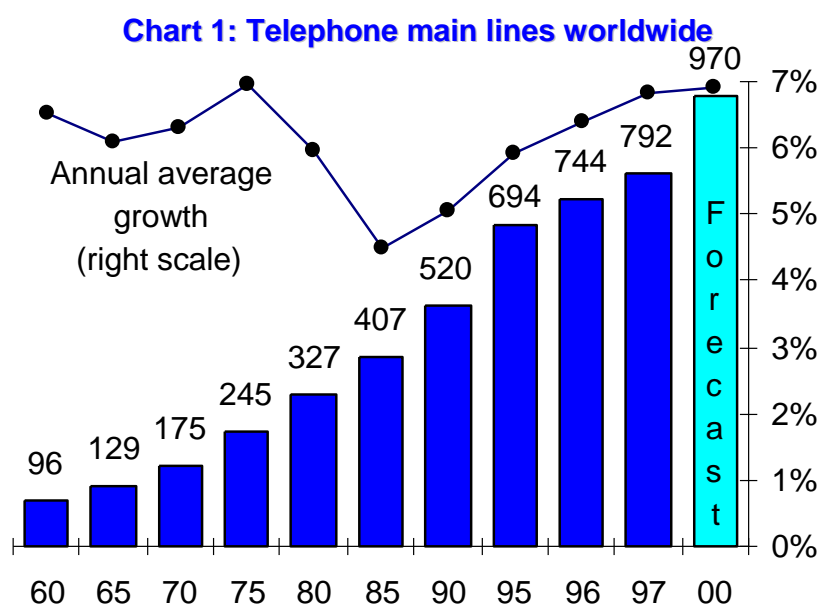
- **Digital Opportunity** – what is the potential of ICTs for enhancing social and economic development, and for empowering citizens and communities; and how can this be harnessed in developing countries?
 - **Digital Divide** – what impact will differential access to ICTs have on equity?; in particular will it increase or reduce inequalities between and within countries?; and, if the former, how can the benefits of ICTs be more equitably shared?
12. Digital Opportunity represents the positive gains which ICTs can bring to development and to the quality of life. Digital Divide represents the risks that these gains may not be shared equally by all.
13. This section of the report draws on published statistics to illustrate the current state of play in both of these areas, but focuses particularly on the Digital Divide. It sets some preliminary analysis of the published statistics for Commonwealth countries (which are drawn together in Annexes A and B) alongside more general material drawn from other sources and analysis.
14. Further, more detailed analysis of the Commonwealth data can now be undertaken, and the report suggests some areas in which this would be fruitful.

Digital Opportunity

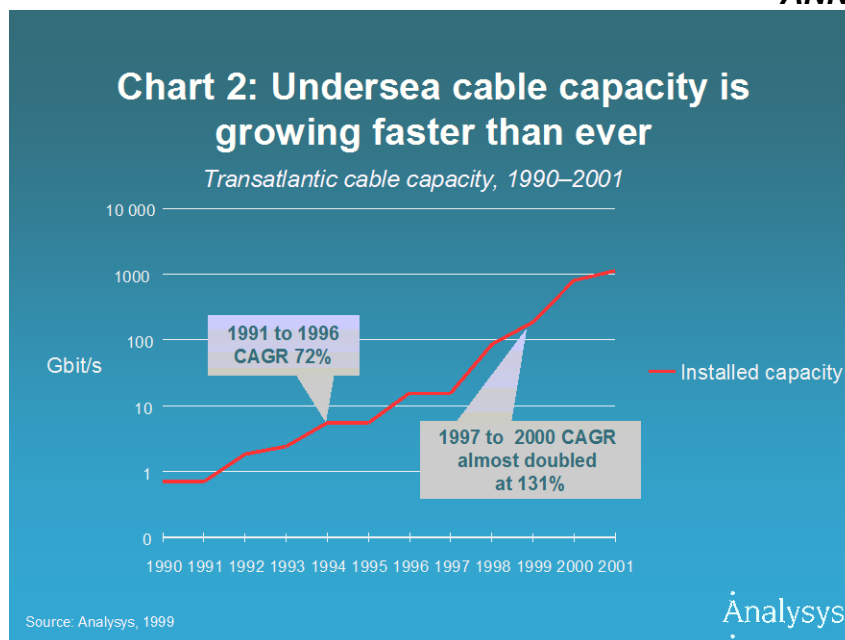
15. Information and communications technologies are built upon several specific products and services, access to which is necessary if individuals or communities are to make effective use of ICTs. These include, principally:
- telecommunications networks, fixed or mobile, which provide the infrastructure for ICTs;
 - telecommunications equipment, either privately owned or publicly available;
 - computer hardware and software;
 - and the internet, which offers services including electronic mail and access to world-wide information resources through the World Wide Web.
16. The following charts focus on three main types of access:
- access to fixed telephony;
 - access to mobile telephony;
 - and access to internet.

ANNEX C Cont'd.

17. Benchmarking data on these types of access are included in the Commonwealth country data at Annexes A and B, along with data for access to personal computers and to the two main traditional forms of ICT, the broadcast media of radio and television.
18. Access to telecoms networks and use of the internet are increasing substantially world-wide, facilitated by rapidly increasing capacity of transmission networks and falling costs.
19. Chart 1 shows the growth in the number of fixed telephone mainlines world-wide over the past decades. The growth it illustrates was largely based in industrial countries up to around 1990, and is today taking place mostly in middle-income countries and countries (notably China) which have deployed exceptional resources towards network roll-out in previously unserved areas.

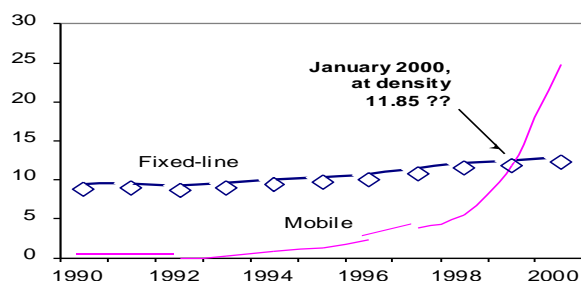


20. This growth is facilitated by increases in the capacity of transmission networks, particularly international transmission networks which are of particular importance for internet. Chart 2 (from the telecoms consultancy Analysis) illustrates the growth in capacity of international cable networks (note that the scale on this chart is non-linear):



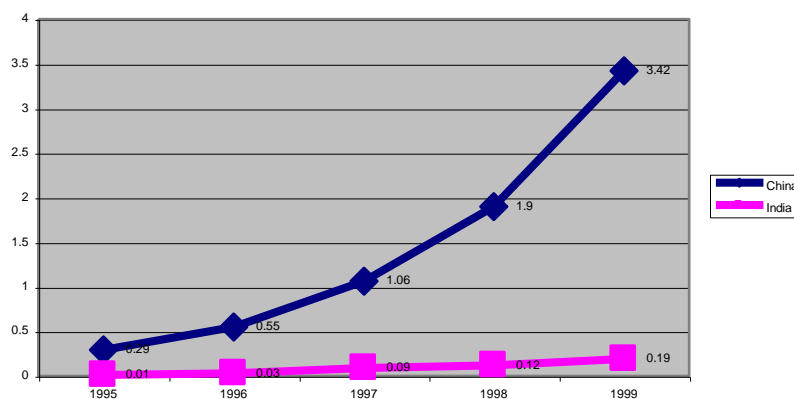
21. International network capacity is therefore growing at a near-exponential rate. Coupled with the continuing doubling of computer capabilities every 18 months or so (known as Moore's Law), this increased capacity enables ever more complex tasks to be undertaken through ICTs.
22. Twenty years ago, fixed networks looked as if they would dominate telecommunications for the foreseeable future. They now provide only part of a varied array of available services.
23. Mobile networks have offered immediate telecoms connectivity, at competitive prices, enabling consumers in many countries to bypass fixed network waiting lists at little (if any) additional cost. Mobile take-up has been particularly strong where tariffs have been based on 'calling party pays' principles and where pre-paid tariff packages have been made available. As with fixed lines, however, mobile tariffs remain too high to provide an alternative to public access for low-income citizens in low-income countries.
24. The number of mobile lines already exceeds the number of fixed lines in many countries, and is poised to exceed the number of fixed lines world-wide by about 2005. South Africa illustrates the speed with which this change has taken place:

Chart 3: Cross-over between fixed and mobile lines in South Africa
(Subscribers per 100 inhabitants)

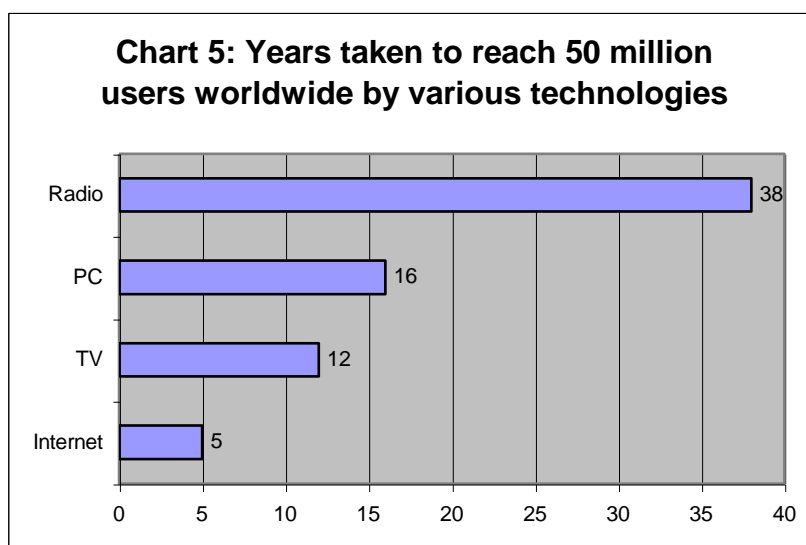


25. The rate of growth has, however, varied sharply between different countries, often as a result of different policy frameworks or business models. Chart 4 illustrates this by comparing the rate of growth in mobile users in the world's two most populous countries, India and China.

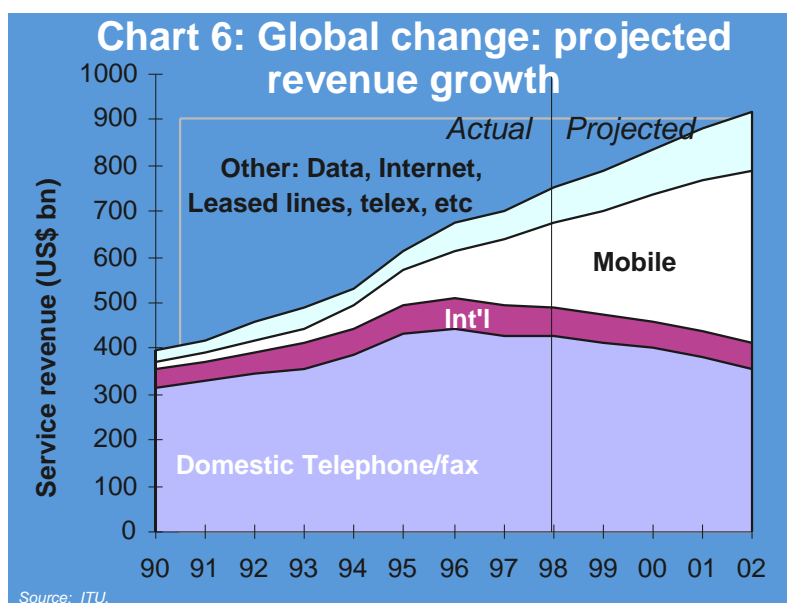
Chart 4: Mobile Subscribers per 100 Inhabitants, India and China



26. If the growth of mobile networks has been rapid, it has been exceeded by the growth of internet - driven initially by electronic mail and more recently (especially in industrial countries) by the World Wide Web. Chart 5 compares the growth of access to internet world-wide with the growth rates of access to other information technology resources in the past.



27. These developments are rapidly changing the business pattern for the telecommunications sector. Chart 6, originating in the ITU, predicts the changing share of international telecoms revenue earned by different market segments over the period to 2002.



28. This shows that mobile and data (including internet) sectors will supersede traditional telephony as the main revenue earners for telecommunications operators within that timescale, with major consequences for their business planning processes. In industrial countries at least, telcos will need to focus their businesses on the newly-dominant market segments, which implies that they will need to promote access to new services and to transactions undertaken through them.

ANNEX C Cont'd.

29. The picture from these global data, therefore, is one of rapid increase in the world-wide use of ICTs, particularly internet. However, there are very substantial differences in the experience of different countries and regions.

Digital Divide

30. The term 'Digital Divide' refers to the differential between those with access to a particular ICT product or service and those without it - and to the consequential relative advantages and disadvantages of this differential access.

31. It should be noted that 'Digital Divide' is a relative concept. It measures the differentials between different groups (for example, in terms of access or usage of ICTs) rather than absolute levels (of access or usage). A growing digital divide does not mean that citizens and communities on the wrong side of the divide are losing out in absolute terms - they may, in fact, be making significant social and economic gains at relatively low levels of access, but also falling further behind their better-served contemporaries in terms of equity.

32. There are four main areas in which a 'Digital Divide' has been discerned or feared:

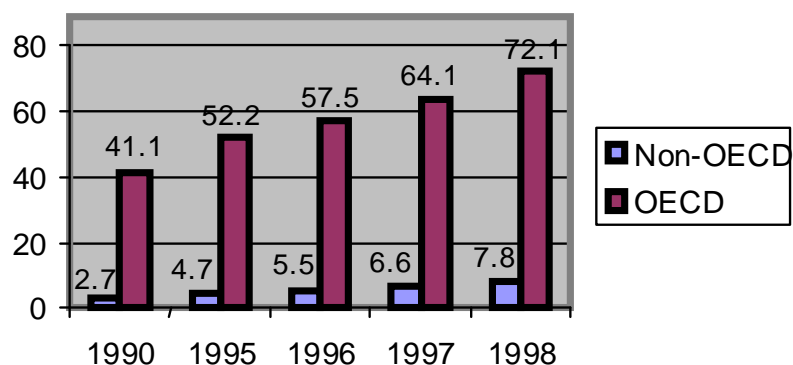
- between countries - in particular, between industrial and developing countries, or between the majority of countries and LDCs;
- between different countries within geographical regions - for example, between one country and its neighbours;
- within countries, between different geographical areas - in particular, between urban and rural areas, or between the capital/largest city and the rest of the country;
- and within countries, between different income or social groups - rich and poor, men and women, literate and non-literate, and between different ethnic groups.

33. The following charts illustrate the 'Digital Divides' which can be discerned world-wide and within the Commonwealth.

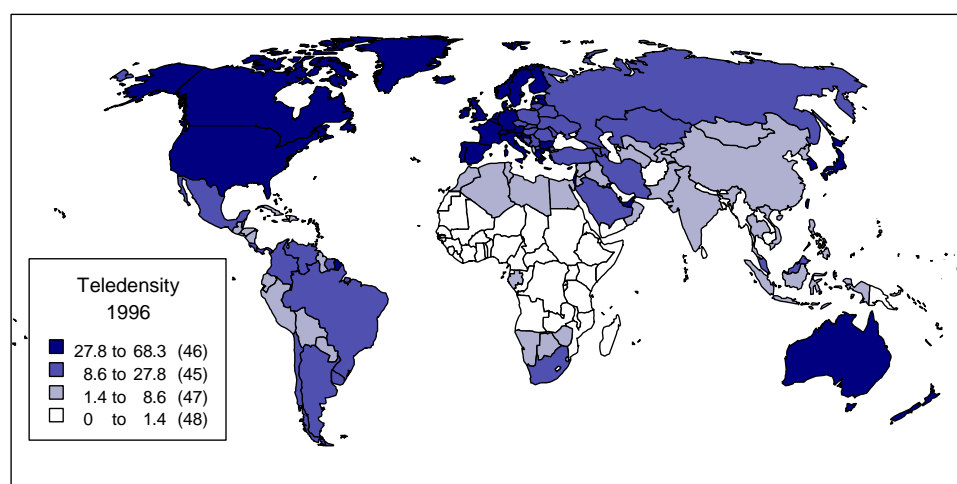
The International Digital Divide

34. Inequity of access between industrial and developing countries is well illustrated in a recent report from the OECD.

35. Chart 7 illustrates the differences between access to telecommunications (fixed and mobile together) in OECD and non-OECD member-countries during the 1990s:

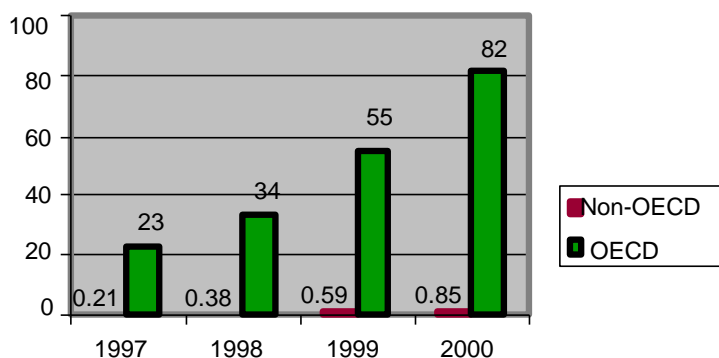
Chart 7: Telecom access (Fixed and Mobile) per 100 inhabitants

36. Another way to illustrate this is to divide countries into four quartiles according to telephone density (per 100 population) and compare their geographic distribution, as in Chart 8:

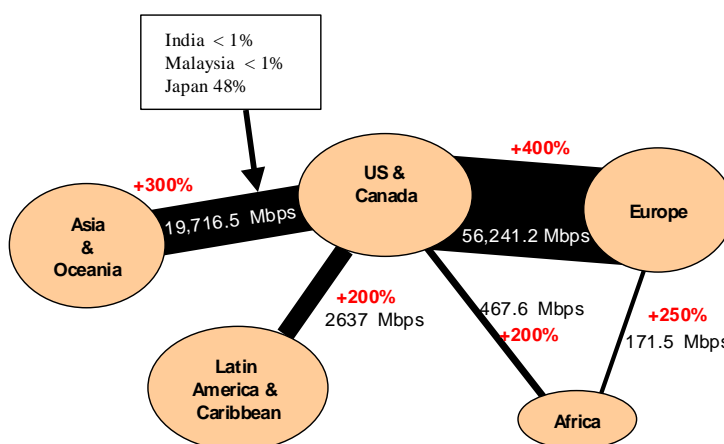
Chart 8: Distribution of teledensity by quartile, 1996

37. Teledensity per 100 population is an imperfect measure, because it is highly variable according to household size and because it gives no value for public or community access. It nevertheless gives the simplest available international comparison of access to telephony.

38. The difference is even starker in internet access and usage. Less than 1% of Africans have access to the internet, but almost 50% of North Americans do so. Chart 9 shows the number of internet hosts per 100 inhabitants in OECD and non-OECD countries, effectively measuring the extent to which countries contribute to internet content.

Chart 9: Internet hosts per 100 inhabitants

39. The global flow of internet traffic is even more indicative of the divide between industrial and developing countries. Chart 10, from TeleGeography, illustrates the available internet capacity between different regions of the world, and also shows anticipated growth rates which imply that these differentials will widen in the near future.

Chart 10: Internet capacity between world regions

40. This global digital divide - between rich and poor countries - is largely reflected in the Commonwealth data in Annexes A and B.

41. These data include statistics per 100 population, so far as is available, on access to six main components of ICT: fixed telephony, mobile telephony, personal computers, internet, television and radio. Where available, they also give data for the number of fixed lines per 100 households (which adjusts the standard teledensity figure for household size) and for the number of payphones per 100 population (an effective measure of public access to telephony.) Chart 11 illustrates the differences between the highest and lowest values for the key ICT access means within the Commonwealth:

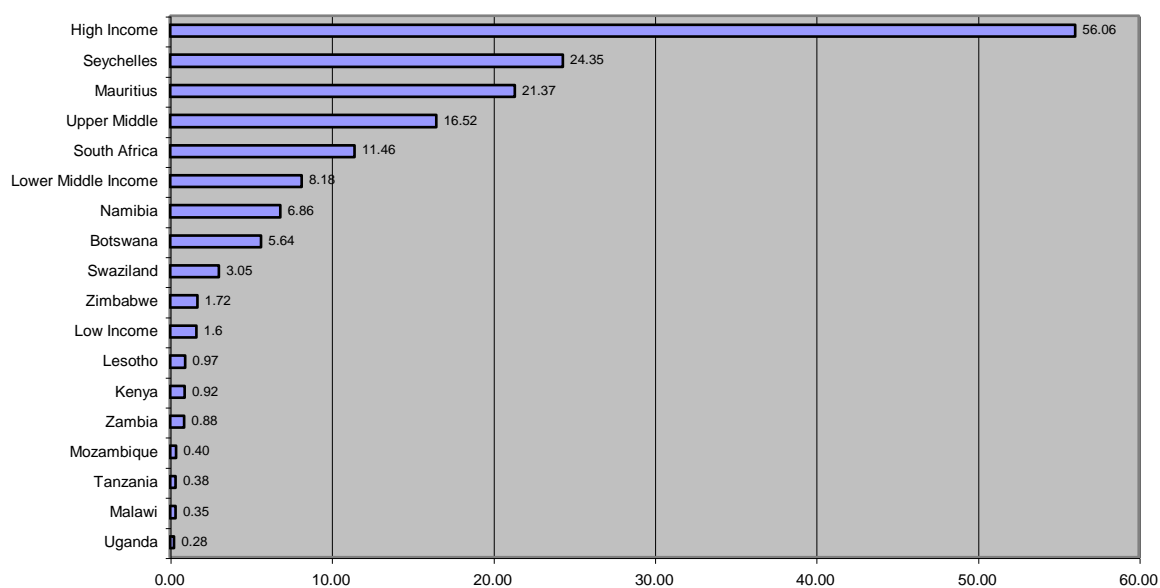
Chart 11: Maximum and minimum access values for Commonwealth countries

Variable	Maximum		Minimum	
Fixed lines per 100 population	Canada	65.45	Uganda	0.26
Mobile lines per 100 population	UK	45.69	Bangladesh	0.12
PCs per 100 population	Australia	46.92	Malawi	0.09
Internet users per 100 population	Canada	36.08	Bangladesh	0.04
TV sets per 100 population	Australia	70.65	The Gambia	0.32
Radio sets per 100 population	UK	141.95	Lesotho	3.69

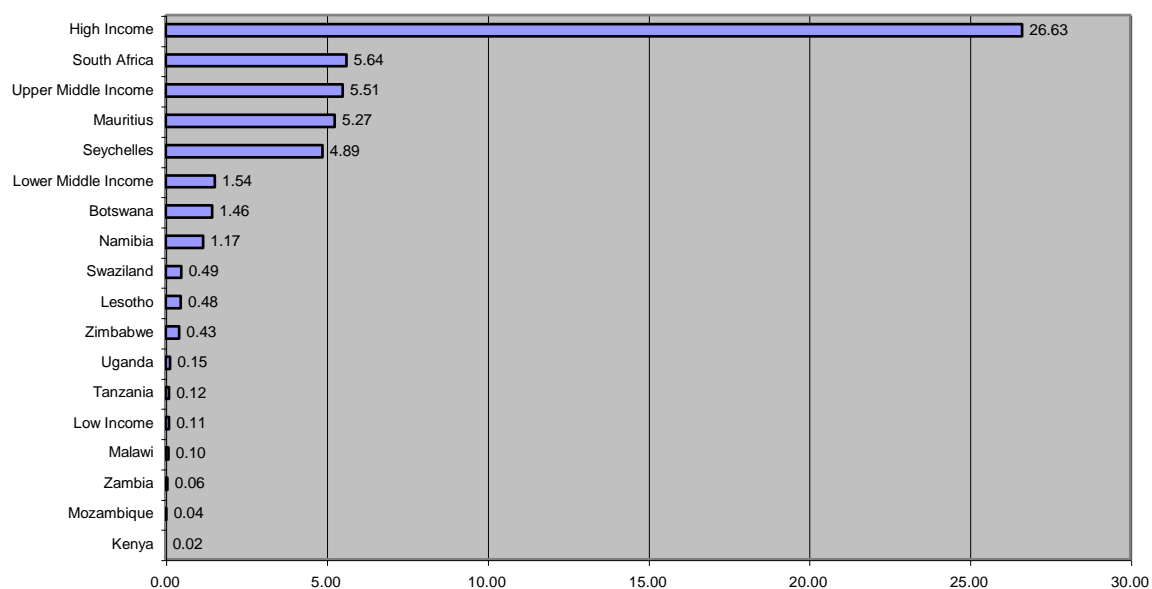
Regional data

42. The second key digital divide is that between individual countries within a particular geographical region. The following section of this report gives some illustrations of these intra-regional distinctions within the Commonwealth, principally from sub-Saharan Africa. More detailed analysis of other regions can be made, but would go beyond the required length for this report; and will therefore be reported in an oral presentation to the Group in Cape Town.
43. Intra-regional distinctions are particularly marked in sub-Saharan Africa, where South Africa is far more engaged with internet than any other country. The following charts illustrate this by comparing South Africa's ICT statistics with those of other East and Southern African Commonwealth countries. In each case, the position of individual countries is also benchmarked against the global averages for the four World Bank economic categories (high income, upper middle income, lower middle income, and low income).
44. Charts 12, 13 and 14 show, respectively, the number of fixed telephone lines, mobile lines and internet users per 100 population in these countries:

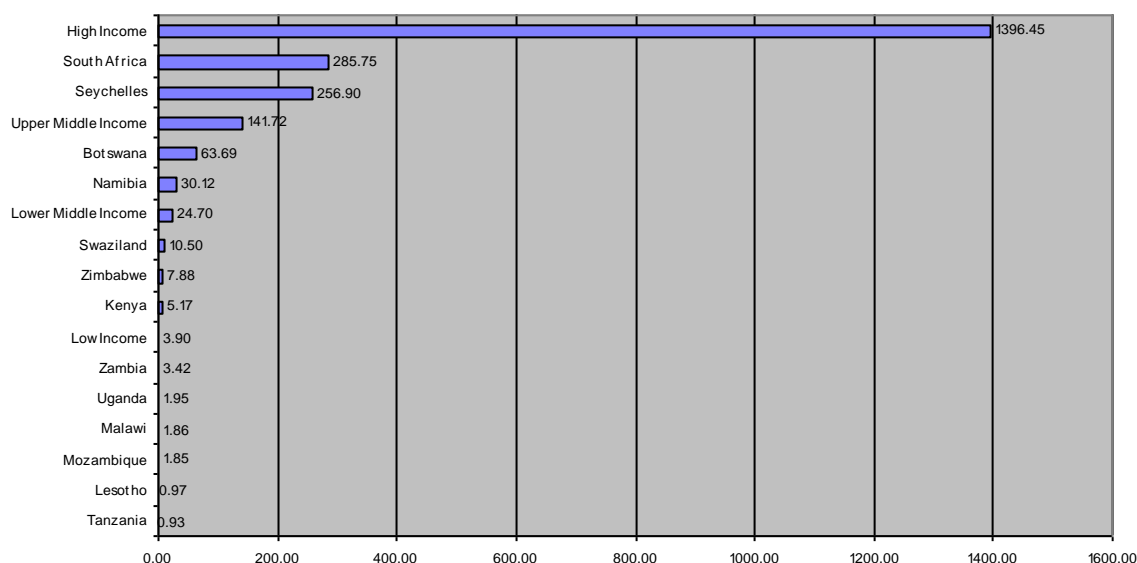
**Chart 12: Commonwealth East & Southern Africa: Mainlines
per 100 Inhabitants (1998)**



**Chart 13: Commonwealth East & Southern Africa: Cellular
Mobile Per 100 Inhabitants (1998)**

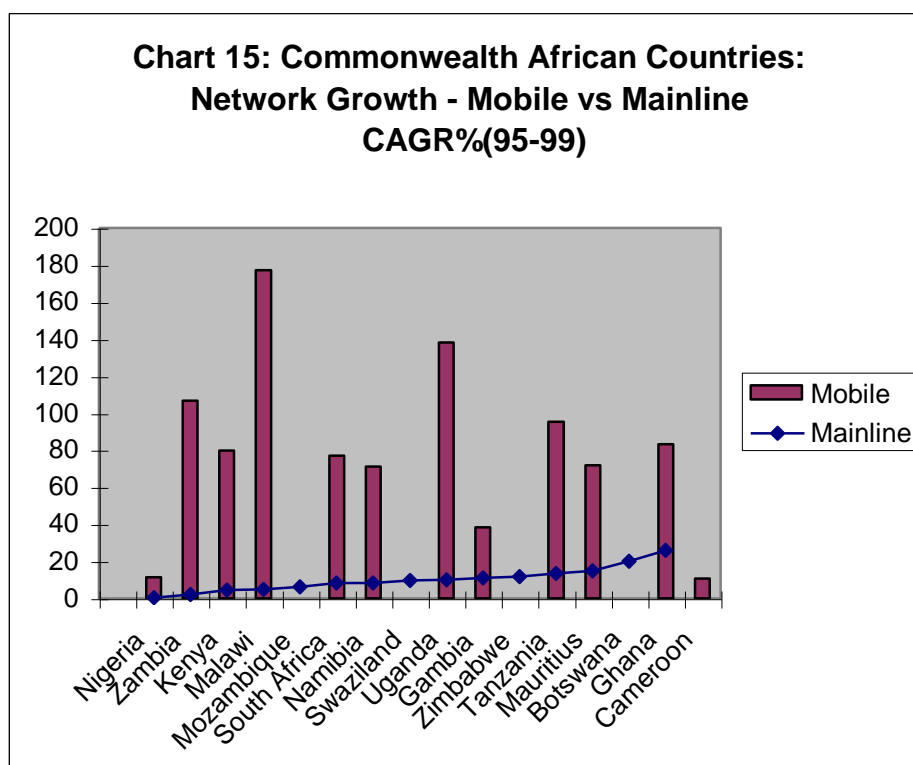


**Chart 14: Commonwealth East & Southern Africa:
Internet Users per 10,000 inhabitants (1998)**

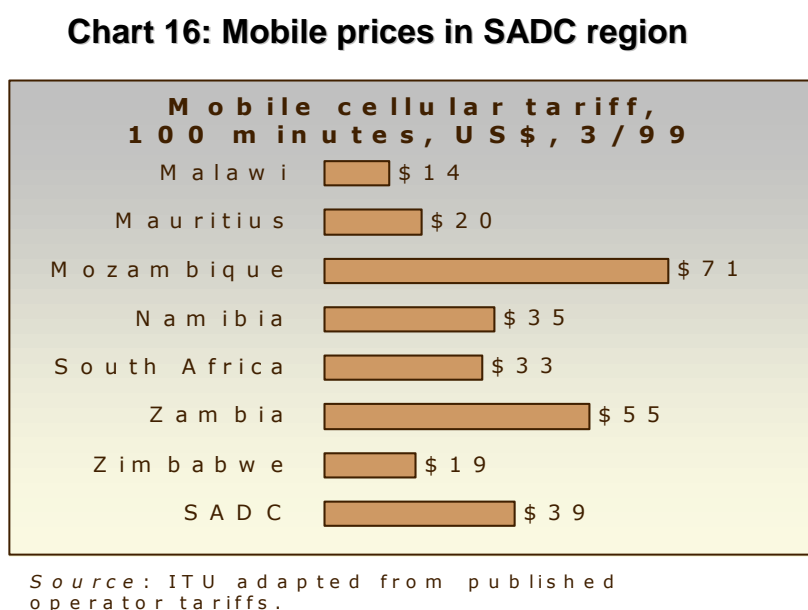


45. Three further points are worth making at this stage with reference to East and Southern Africa.

46. Firstly, as Chart 15 indicates, there is very considerable variation between growth rates of fixed and mobile networks in different countries. Further analysis should suggest reasons for this, which may lie in the different timing of mobile licensing, in the extent to which mobile enables bypass of fixed line waiting lists, and in different tariff models adopted by mobile operators.



47. Secondly, there is very considerable difference between the tariff packages offered by different operators, and therefore their affordability. CHART 16 illustrates these differences from mobile tariffs within the SADC region at a particular point in time (March 1999):



48. Thirdly, South Africa's regional dominance of internet usage is reflected in a dominant position too in sub-Saharan Africa's internet connectivity, as shown by Charts 17 and 18.

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South Africa in fact has some 65% of the continent's total bandwidth capacity, and also acts as a hub, aggregating traffic from neighbouring countries such as Botswana and Zimbabwe.

Chart 17: East & Southern African Commonwealth Countries: Share of International Bandwidth

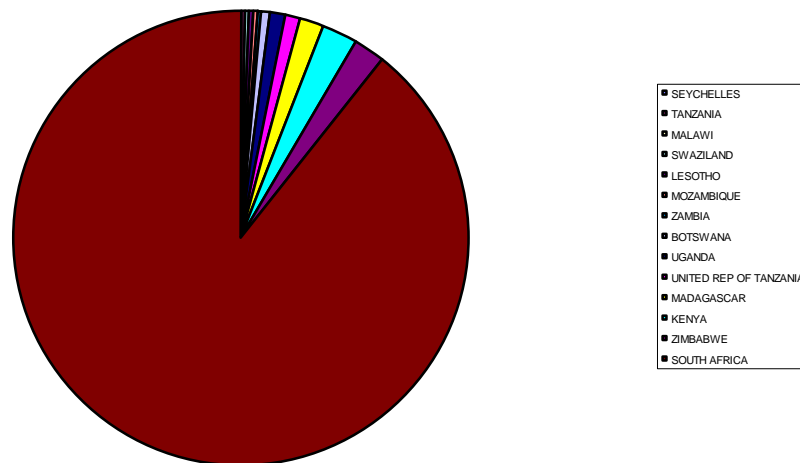
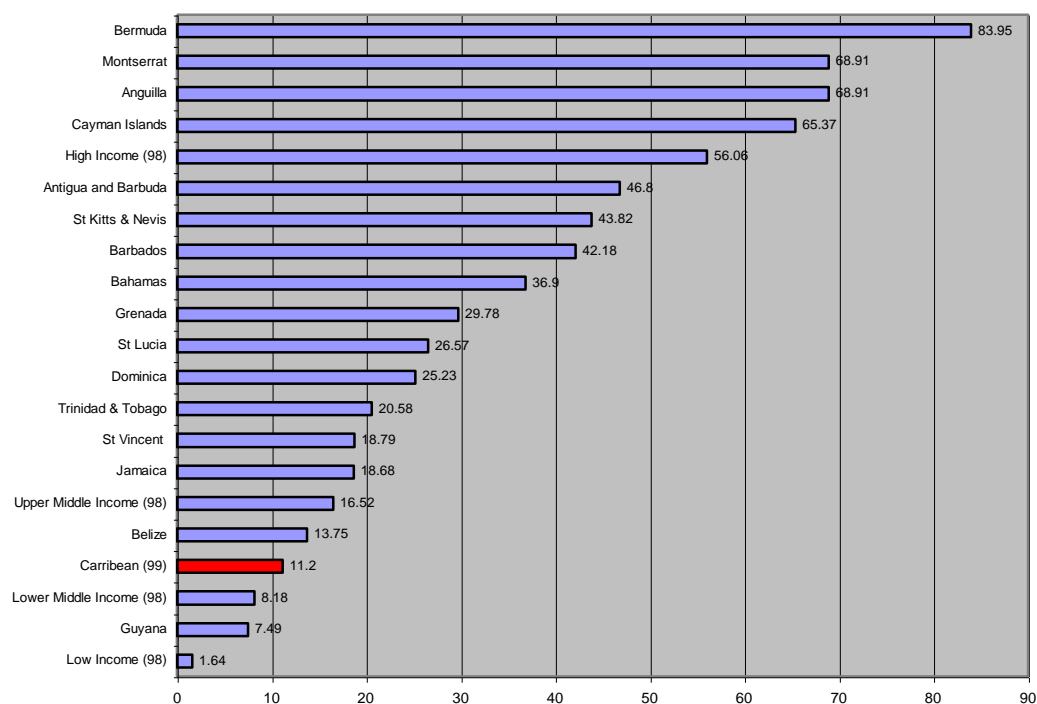
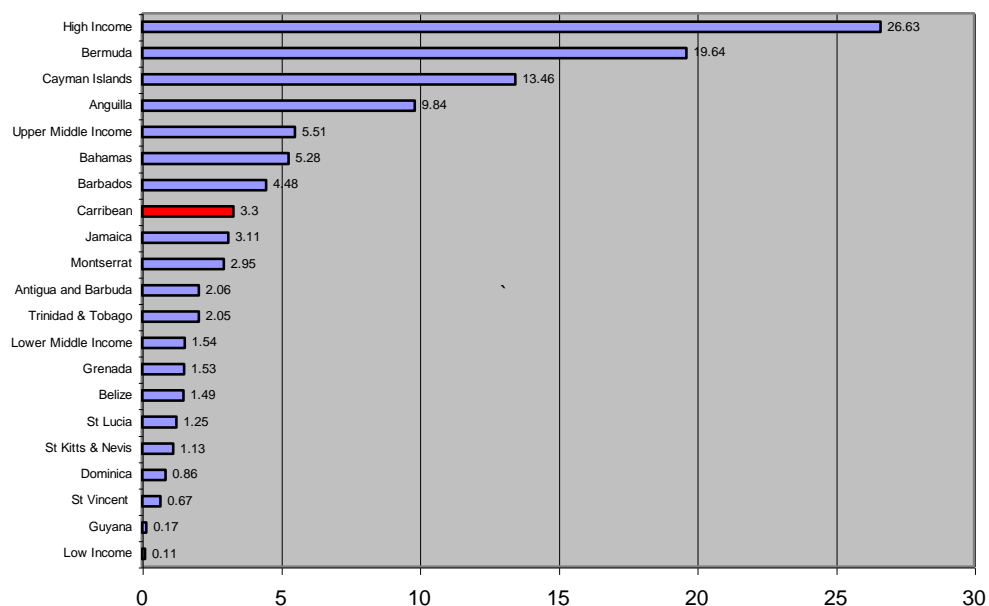


Chart 18: Internet capacity between Africa and the rest of the world



Regional data: the Caribbean and Asia/Pacific regions

49. Similar regional comparative charts can be provided for other Commonwealth regions, but not within the required confines of space for this report. The following charts are therefore intended to draw attention to some of the comparisons that can be made using data for two other Commonwealth regions, the Caribbean and Asia/Pacific.
50. Charts 19 and 20, for example, benchmark Caribbean Commonwealth countries' mainline and mobile teledensity against the four World Bank economic categories and against the overall Caribbean average. They show in particular that most Caribbean Commonwealth outperform the rest of the Caribbean region where fixed lines are concerned, but underperform the rest of the region in mobile connections.

Chart 19: Mainlines per 100 inhabitants - Caribbean (1999)**Chart 20: Mobile Subscribers per 100 population - Caribbean**

51. The next four charts (Charts 21-24) offer similar comparative data for Commonwealth Asia/Pacific countries, and also allow comparison between Commonwealth countries, global economic categories and the average for the region in which these countries are located.

Chart 21: ICT Penetration in Asia Pacific

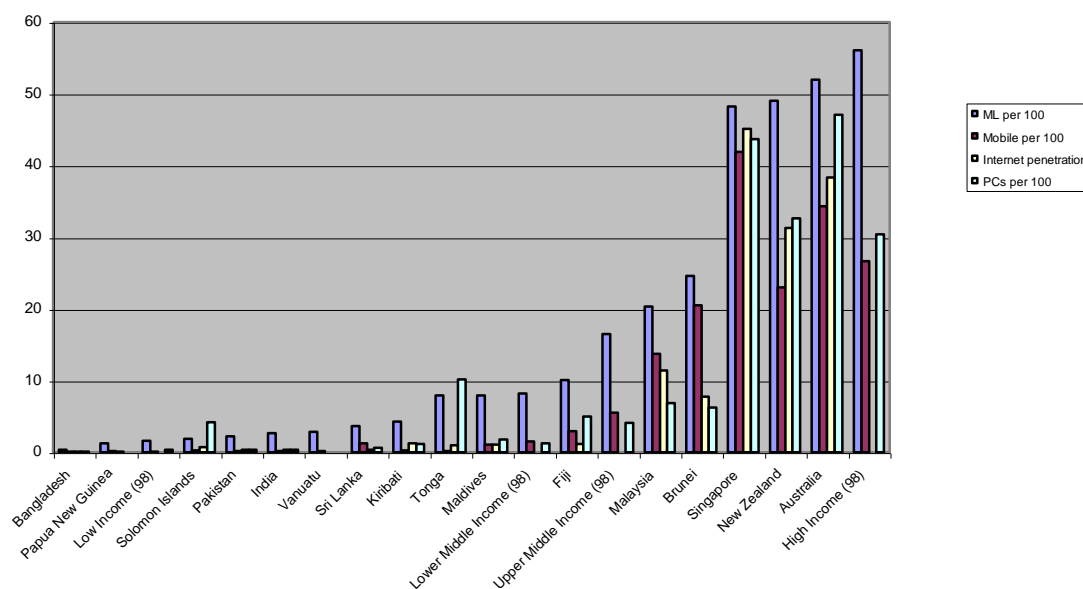


Chart 22: Asia-Pacific: Mainlines per 100 Inhabitants (1999)

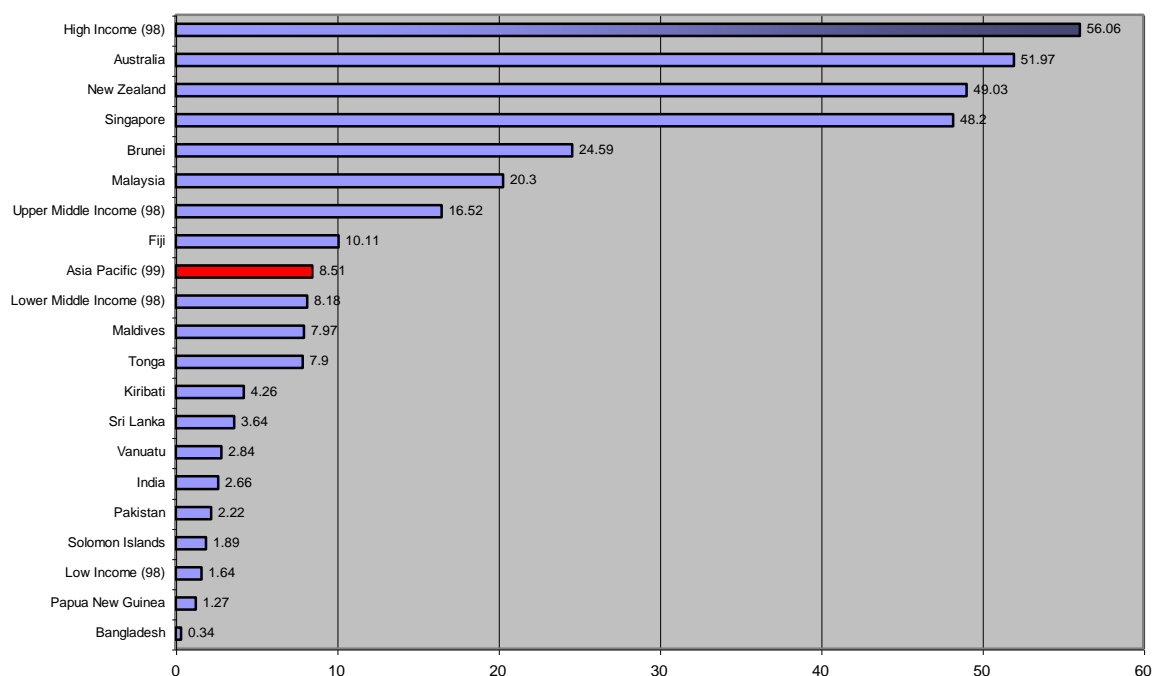


Chart 23: Asia/Pacific - Mobile lines per 100 population

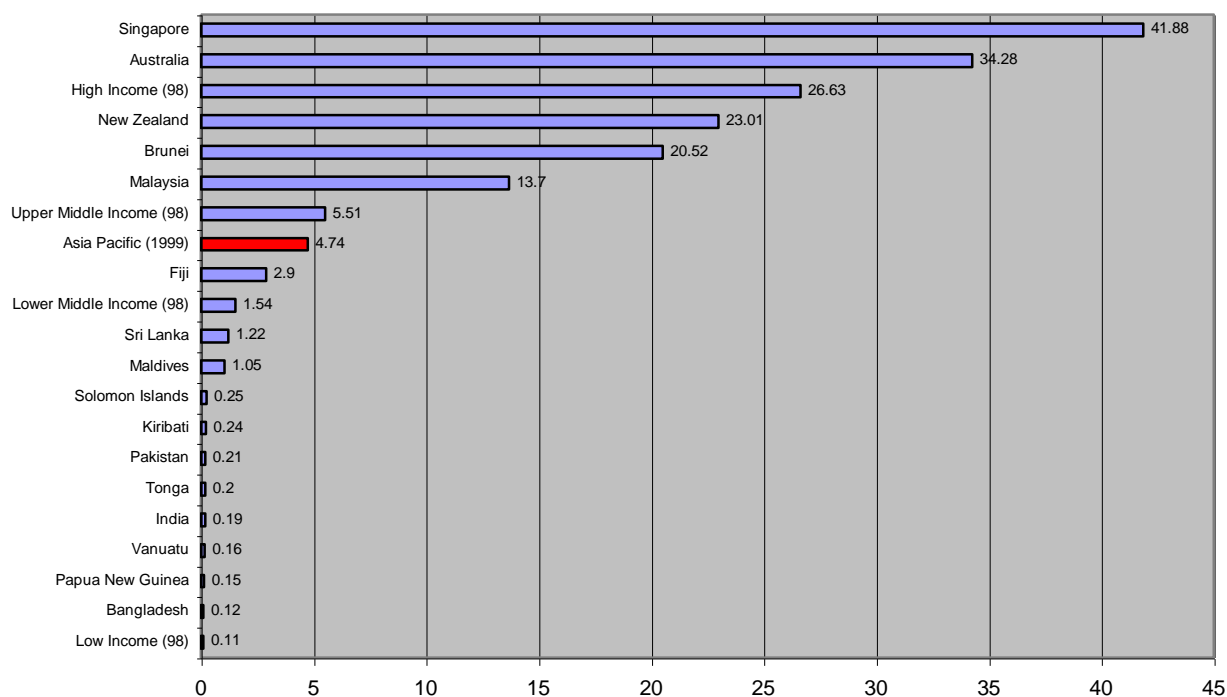
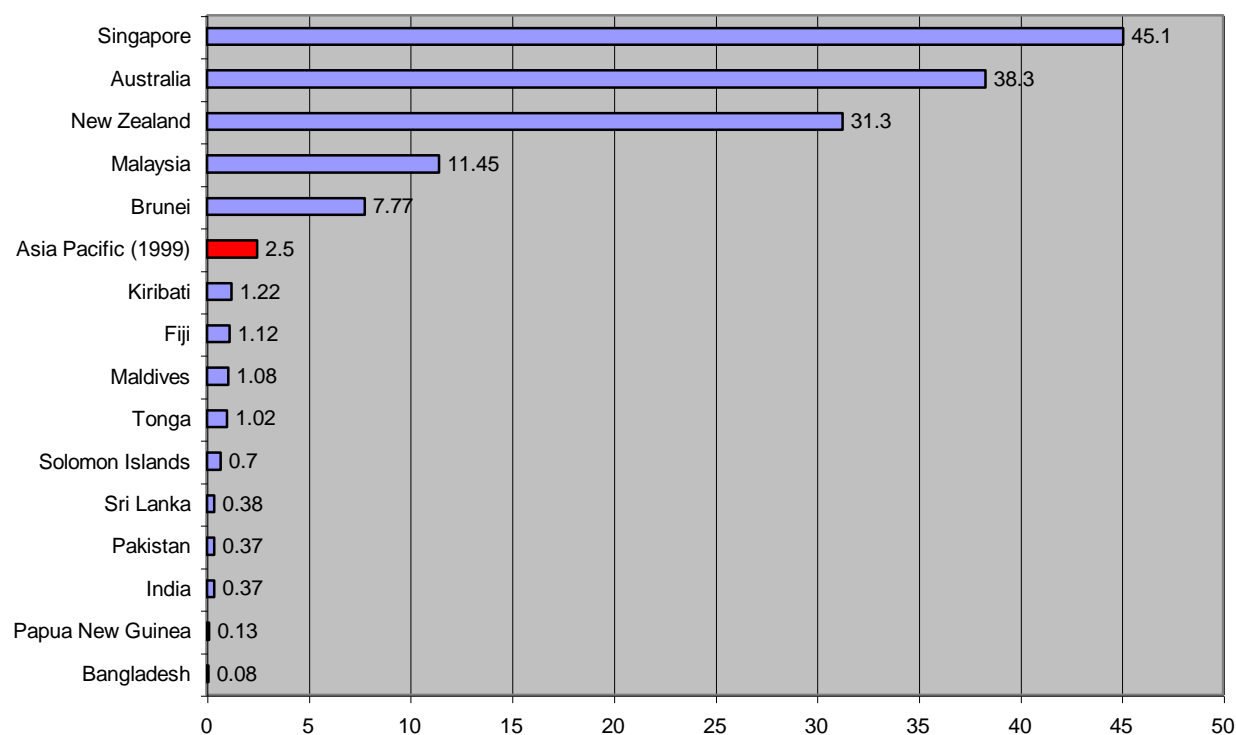


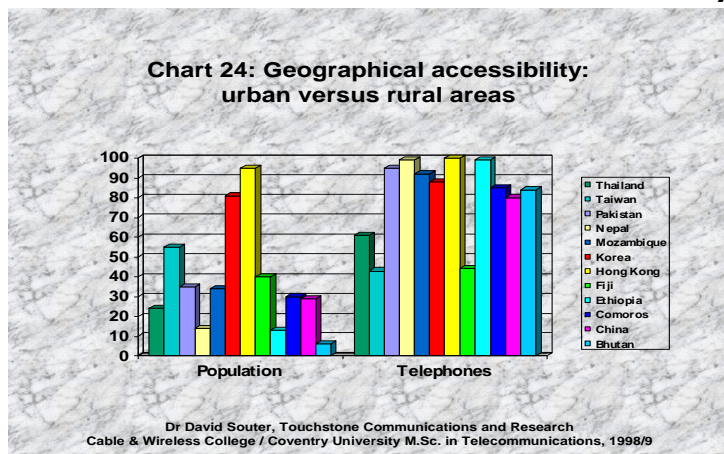
Chart 24: Asia/Pacific - Internet users as %age of Population (1999)



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National digital divides

52. Official statistics are much less satisfactory at measuring the internal digital divides within countries – for example, those between town and country, and between rich and poor – than they are at measuring international differences.
53. There are two main reasons why access to ICTs is lower in many developing countries than in industrial countries:
- the absence of telecommunications networks (and local Internet Service Providers) in parts of the national territory;
 - and the high cost of access and usage relative to average national income.
54. In some countries, these are accompanied by a third reason: long waiting lists for access to fixed telephony resulting from business inefficiencies or limited network capacity.
55. The urban/rural divide is affected by both factors. Most developing countries have areas which remain beyond the reach of fixed and mobile telecoms networks; certainly areas where the capacity of local networks is severely limited. At the same time, rural populations are generally poorer than those in urban areas; and access to internet, at least, is often more expensive because it entails long-distance telephone calls to urban ISPs.
56. Comparative data on telephone density per 100 population in the capital city and rest of country are included in the Commonwealth country profiles in Annexes A and B. A higher figure for the capital city would be expected in most cases because of the larger number of businesses located there. The differential in many developing countries is, however, very considerable - 7.75% against 0.8% in The Gambia, for example, or 32% against 4.5% in Namibia.
57. Chart 24 illustrates from a number of countries - some Commonwealth, some not - comparisons between the proportion of the population living in urban areas and the proportion of fixed telephone lines in those areas. Where the difference is exceptionally high, this is usually attributable to the lack of any effective network in most rural areas.



58. Published official data are less helpful in illustrating the digital divide between rich and poor within a particular country (or urban area). Access figures by income group are not generally available for developing countries. There are, however, some basic rules of thumb that appear to apply to telecommunications access.

59. Firstly, evidence collected by the ITU for its 1998 World Telecommunications Development Report suggests that, in industrial countries where almost all households can afford a residential telephone line, households spend on average around 2% of household income on telecommunications. Extrapolating from this, assuming a maximum potential telecommunications spend of 5% of household income, and applying it to available household income data, the ITU believes that world households would break down as follows if networks were fully geographically deployed world-wide:

Chart 25: ITU projected breakdown of household telecoms demand

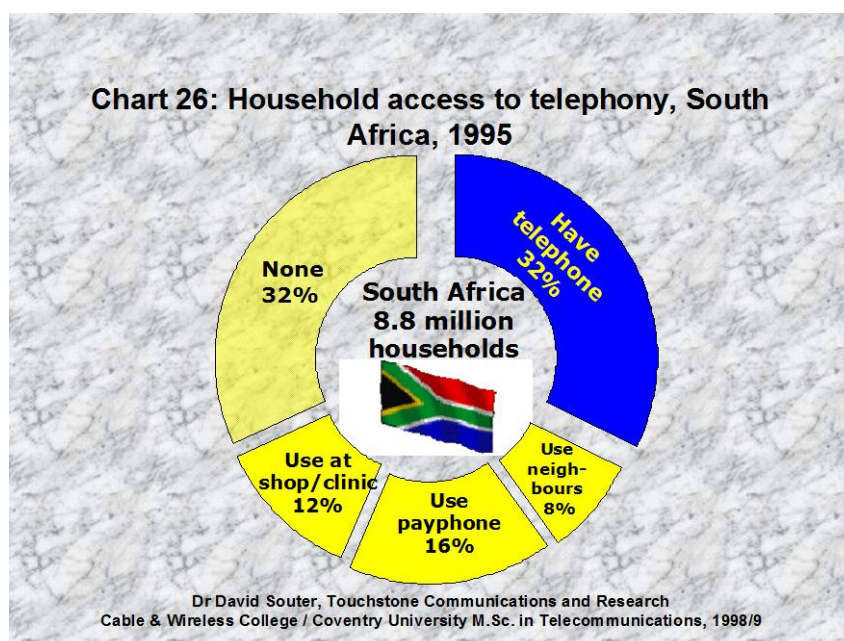
Households with telephone service	504,000,000
Households without telephone service, on waiting list, could (probably) afford residential service	42,000,000
Households without telephone service, not on waiting list, could (probably) afford service	244,000,000
Households without telephone service, not on waiting list, could not afford service	676,000,000

60. In other words, a minimum of 676 million households world-wide - almost all of them in developing countries - would be unable to afford private rather than public access to telecommunications, even at this very high level of propensity to spend on telecoms.

61. It is worth setting alongside this the findings of a 1995 consumer survey of South African household access to telephony, set out in Chart 26. This found that, while about one-third of households had residential access to telephony, a further third declared that they had

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access to telephony either through public facilities or through lines in neighbours' or business premises.



62. Teledensity – the number of telephones per 100 population or per 100 households is, therefore, a measure of private access to telecommunications, rather than of access to or usage of telecommunications in itself, because it captures only residential and business users, not regular users of public or borrowed facilities. (It is, in effect, equivalent to vehicle ownership as an indicator of road use, which would ignore users of public transport.) More sophisticated measures are needed to capture real access to and usage of telecoms and internet networks, especially in low-income communities.
63. More detailed research is also needed to identify users of telecommunications and internet in individual communities, and thereby digital divides that may exist within these communities. Three points worth making from such research as has been done concerning internet access and usage, however, are these:
- Internet use is disproportionately high among higher income groups in all societies where this has been measured (including the most internet-aware society of all, the United States).
 - Internet use rises with levels of educational attainment - the World Bank reports that 98% of Zimbabwean and 87% of Ethiopian internet users surveyed had university degrees.
 - Men are more likely to use the internet than women. The ILO reports the proportion of male internet users in three African countries (Ethiopia, Senegal and Zambia) as, respectively, 86%, 83% and 64%.

64. These factors need to be taken into account, alongside income and geographical variables, in determining appropriate policy responses to national 'Digital Divides'.

Sector Restructuring

65. These developments have taken place alongside very substantial changes in the structure of the telecommunications sector – which provides the infrastructure for delivery of all ICT services, both internationally and in individual countries. This sector restructuring is generally believed to have led to lower prices, greater variety of services and more widespread access to ICTs.

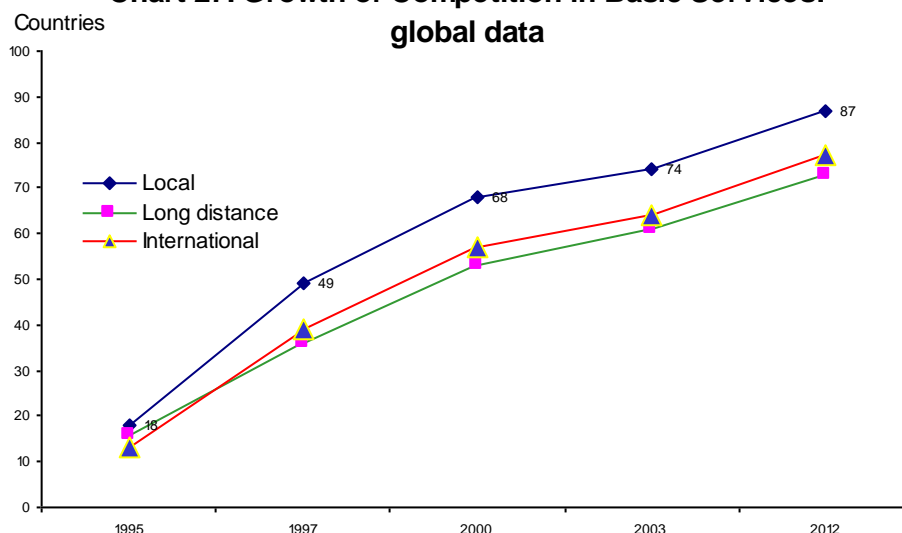
66. Three processes have been central to restructuring:

- **liberalisation** of existing market segments, in particular the introduction of competition to former-monopoly fixed telecommunications networks;
- **privatisation** of state-owned fixed telecoms networks (often, in developing countries, through the introduction of an external strategic equity investor);
- introduction of independent **regulation** of (at least) the telecommunications sector, usually accompanied by the establishment of universal **access targets**.

67. Since 1990, these processes have become the norm. As the following charts show, across the globe, the communications industry and infrastructure have moved or are moving from public sector monopoly to (regulated) private sector competition. These trends are continuing and are reinforced by sector reform and regulatory requirements in the World Trade Organisation Agreement on Telecommunications Services, to which most countries have now subscribed. They will include almost all countries world-wide within the next five years - including almost every territory within the Commonwealth.

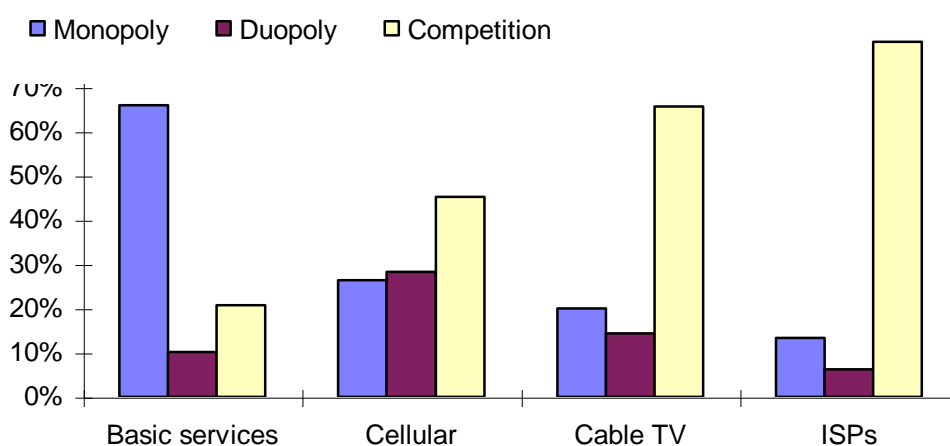
68. Chart 27 shows the extent to which the market for basic telecommunications services has been liberalised in recent years, and projects this forward to 2012:

**Chart 27: Growth of Competition in Basic Services:
global data**



69. There is, however, considerable variation in the extent of competition between different market segments, as shown in Chart 28. Mobile cellular telecommunications services are more likely to be competitive than fixed services, while Internet service provision has been made competitive in almost all countries.

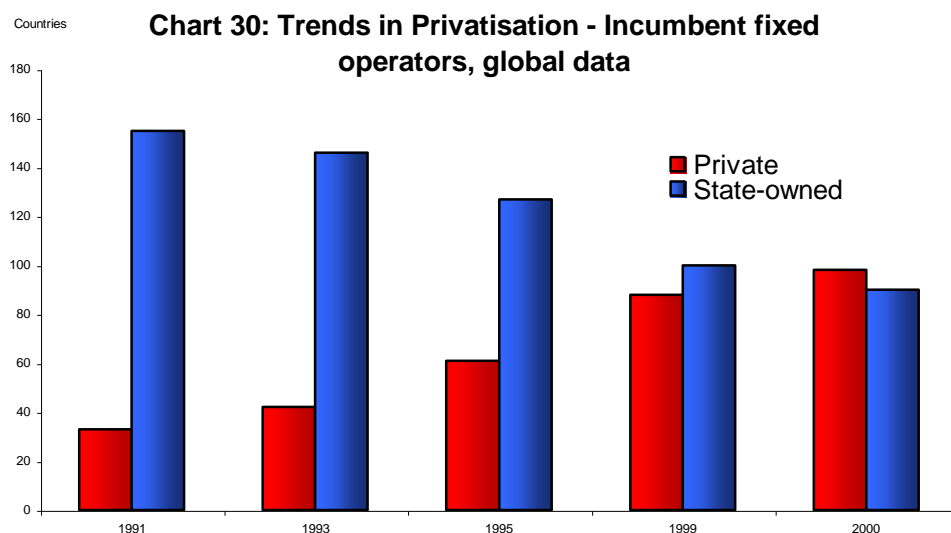
**Chart 28: Competition in Selected Services -
global data, 1999**



70. There is strong evidence to suggest that competition in ICTs generally leads to lower prices and more widespread access.

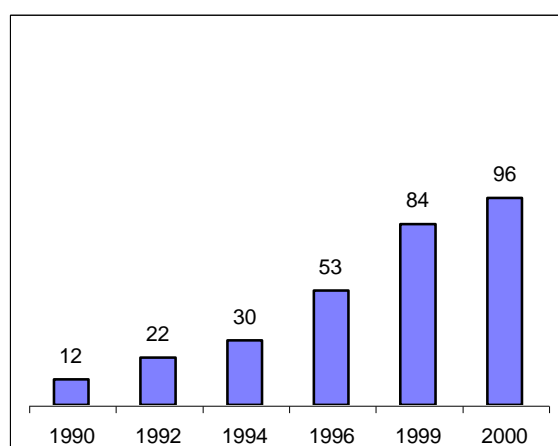
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71. Chart 30 shows the extent to which incumbent fixed telephone companies have been privatised in recent years (including partial privatisation through the introduction of strategic equity partners, usually with management control):



72. Independent regulators - *i.e.* regulators independent of operating companies, if not governments - have been introduced to facilitate transition from monopoly to competitive markets, and ensure that this transition is accompanied by movement towards achieving national ICT access targets. Chart 31 illustrates the growth in the number of independent regulators world-wide in recent years:

Chart 31: Number of established independent regulators: global data



73. Annex A includes latest published data on competition, privatisation and regulation for Commonwealth countries, together with a note on whether these countries have made commitments under the World Trade Organisation Agreement on Telecommunications

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Services. An outline restructuring index, indicating the extent to which restructuring has progressed, is also in preparation.

74. It should be noted, however, that the latest published information usually refers to 1999. Restructuring is in process in almost all Commonwealth countries, and this data needs continuous updating. Later information has been included where readily available, and this section of the data will be updated further in line with responses made to the questionnaire issued to Ministers of Communications as part of this research.

Further Analysis and Research

75. This section of the report has drawn attention to some factors concerning the Digital Opportunities and Digital Divide within Commonwealth countries derived from a preliminary analysis of the new Commonwealth data-sets included in Annexes A and B attached to this report. More extensive analysis will be presented orally to the Expert Group.
76. Having assembled data-sets for the Commonwealth and undertaken this preliminary review, the CTO believes that detailed analysis of these data would make a valuable contribution to understanding the developments which are taking place within the Commonwealth.
77. Preliminary analysis of the data does not suggest that there are major differences at a global level between Commonwealth countries' overall experience of Digital Divide and that of other comparable countries in the world community. Commonwealth sub-Saharan Africa's experience, for example, looks broadly similar to that of non-Commonwealth sub-Saharan Africa.
78. At a more specific level, however, there are some distinctions to be drawn. The Commonwealth Caribbean, for example, demonstrates higher levels of fixed network connections than the Caribbean average, but lower levels of mobile connection. More detailed regional analysis of the data-sets in Annex B could well identify significant issues for regional policy development within the Commonwealth. Similar analysis could and should be made of the data-sets to gain a deeper understanding of the position of Commonwealth LDCs and Commonwealth small and small island states.
79. Secondly, more detailed analysis of individual country experience would be useful, particularly where individual countries outperform their peers in terms of GDP per head or of the UNDP Human Development Index (for example, in terms of access to telephony or internet usage). Analysis of this kind would help to identify common factors in high-

performing countries, and could help to establish a basis for delineating replicable 'good practice'.

80. In-country digital divide issues - for example, divisions by income group, gender or educational attainment - are much less susceptible to analysis from published data. Further research here should concentrate on accumulating information from smaller-scale studies conducted in-country. Some such data exist: these could usefully be compiled, and used to identify where further targeted and co-ordinated survey research could most usefully be undertaken. Such new surveys could be done relatively quickly, and would help to inform effective decision-making.

SECTION 2: DEVELOPING EFFECTIVE INDICATORS FOR THE DIGITAL AGE

81. The terms of reference for this report asked for an assessment of 'the limitations of existing indicators to identify conceptually how new ones might be created and information captured to make them usable.'
82. The data included in Annexes A and B to this report are derived from the main published sources of statistics on ICTs and development, in particular those collected by the ITU, UNDP and the World Bank.
83. As indicated above, these country-level statistics are valuable in providing an overall picture of the state of ICT access in developing countries, but they have a number of deficiencies.
84. Firstly, they are dependent on the submission of accurate and comparable data by national reporting agents, generally government ministries concerned with communications issues. These reporting agents themselves depend on accurate reporting by their industry actors. Inaccuracies inevitably arise in a rapidly changing industry, particularly as new competitors become involved in markets. Different industry structures also make it difficult to ensure consistency of data-gathering between countries.
85. Secondly, internationally-reported data are inevitably out of date. Annexes A and B include the latest available reported data, but these mostly derive from 1999 or 1998, a full two years ago. This may be relatively unimportant in a relatively static industrial sector. It is much more problematic in a sector like communications, which is subject to very rapid change. As an illustration of this: the number of mobile telephony connections in Uganda grew from zero to exceed the number of fixed telecommunications lines in a period of around two years, about the same period as this window of delay in official statistics.

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86. This does not mean that the official statistics have no value. As the charts included earlier in this report indicate, they provide a very valuable picture of differences and allow effective benchmarking between countries and regions at the time to which they refer. However, they cannot be taken as necessarily accurate about the current (e.g. March 2001) position in individual countries concerned. Substantial changes are particularly likely to have occurred in data relating to 'new' market segments such as mobile telephony and internet.
87. Official tariff data are also increasingly uninformative, for a number of reasons. Published tariff data are included in Annexes A and B for fixed and mobile telephony and – in the case of the Asia/Pacific region only, where they are available, for internet access. In practice, however, competition has made it increasingly difficult to measure real costs of telecoms or internet access for individuals because of the widely different – and rapidly changing – tariff packages that become available in a competitive market. Internet access costs are particularly difficult to establish without detailed research, whose results will only be valid for a short period.
88. A second set of problems in using the official data as indicators of development results from their aggregative national character.
89. The data are good at identifying the Digital Divide between countries and benchmarking countries against their global or regional counterparts. They are much less effective at identifying the digital divide within countries – between different income groups, for example, or different regional populations. The only exception to this is data on the urban/rural or capital-city/rest-of-country distribution of telecommunications mainlines – and even these are unreliable for international comparisons because of differences in national definitions of city status.
90. For this reason, as noted above, the official data need to be supplemented by other information in order to obtain a clear picture of the internal digital divide - of who is making use of access, how and for what purposes. This is particularly important if access development strategies are to be effectively focused in ways that will reduce inequities. Attention might be paid in this context in particular to:
- users of telecoms/internet in newly-served rural communities;
 - women;
 - socially-disadvantaged groups;
 - professional groups such as teachers and health workers;
 - and singleton and small business people.
91. There have been several attempts in recent years to conceive an Information Society Index, based on a few basic available statistics, that might prove more useful in assessing

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the extent to which developing countries are taking advantage of ICTs than the existing reported data. Such an index might be useful in particular in facilitating identification of countries which are outperforming their comparable rank in terms of GDP per head or Human Development Index.

92. Research already commissioned by the CTO, and based on work on internet diffusion in India, has sought to identify a group of factors which would collectively give an index of performance in the use of ICTs. This set of factors could be used separately in respect of telecommunications and internet (by using the appropriate data for each). The six factors suggested are:

- pervasiveness - a measure of the number of users per capita, specifically aimed at measuring the number making use of access rather than the number of subscribers;
- geographic dispersion - a measure of the physical dispersion of voice telephony or internet points of presence within a country;
- sectoral absorption - the differing degree to which major users - academic, commercial, health and government - make use of ICTs;
- connectivity infrastructure – including factors such as aggregate bandwidth of the domestic backbone, aggregate bandwidth of international links, the number of internet exchanges and the type and sophistication of local access methods;
- organisational infrastructure - an assessment of the robustness of the market and services available;
- and sophistication of use - a measure of how the internet is used and the activities for which it is used.

93. A further tool that would be useful for policymakers would be an index of ICT readiness or preparedness. This would assess the capacity of a country to take full advantage of ICTs, and would focus more on human capacity/resources than the technical or regulatory dimension. It might include factors relating to:

- overall literacy and numeracy levels;
- educational attainment;
- opportunities for IT training;
- and national/regional IT maintenance capabilities,

as well as an assessment of local social and economic requirements and of how extensively the local economy could benefit from wider application of ICTs.

SECTION 3: INTERNATIONAL DOT.INITIATIVES

94. The terms of reference for this report asked for the inclusion of material mapping some of the major organisations – Commonwealth and non-Commonwealth – currently engaged in other Digital policy initiatives.
95. ICTs were not, until recently, considered central to the development agenda by most development agencies. That perception has changed rapidly within the last five years, as the capabilities of ICTs have grown. This has generated interest in the potential of ICTs – the ‘digital opportunities’ – and concern about the equity implications – the ‘digital divide’.
96. The last year, in particular, has seen:
- a) the establishment of a number of international reviews of the role of ICTs in development; and
 - b) the development of new funding initiatives and programmes by development agencies and (in some cases) the private sector.
97. Annex D to this report summarises work that is currently being undertaken in major international fora and gives examples of initiatives being undertaken by individual development agencies and businesses.
98. The principal international review of the role of ICTs in development is the DOT Force (Digital Opportunity Task Force) initiative of the G8 industrial nations. This initiative resulted from the Okinawa G8 summit in late 2000 and aims to set a new framework for intervention to promote ICTs for development at the next G8 summit in Genoa in July 2001. Unusually for the G8, the initiative involves non-official G8 constituencies (the private sector and civil society) and officials from developing countries outside the G8. The Japanese government has indicated its willingness to provide substantial financial resources to support initiatives agreed as a result of DOT.Force.
99. The DOT.Force initiative is supported by the World Bank and UNDP, the major global agencies involved in ICT/development issues, as well as by major industrial countries, and involves other international actors such as OECD and the World Economic Forum, UNCTAD, UNESCO and the International Telecommunication Union. Its likely outcome may be clearer after the next DOT.Force meeting immediately preceding the Cape Town meeting of the Expert Group. It may seek to set a new policy agenda for international action in ICTs and development, and/or institute new funding arrangements for international intervention in this area (more likely building on existing financial resources than establishing a new funding arrangement).

ANNEX C Cont'd.

100. The existence of DOT.Force has been influential in determining the direction of the policy debate within other international agencies reviewing their approach to ICTs and development. This applies to UN agencies such as UNCTAD and UNESCO, as well as the UN Economic and Social Council (ECOSOC); to global sectoral bodies like the ITU (though this is also pursuing the Valletta Action Plan determined at the 1998 World Telecommunication Development Conference); and to industrial country alliances like OECD and the European Union (whose Development Council has commissioned a report on its role in ICTs and development for June 2001). It will inevitably impact strongly, too, on the development of new approaches by other groupings like the OAU and, indeed, the Commonwealth.

101. One major question asked of DOT.Force concerns the continuity of its initiative: will substantive, funded action follow the policy debate? DOT.Force itself is a short-term initiative intended to move forward the international policy agenda. Its ability to do this will depend, to a large degree, on the scale and content of the substantive programmes which result from it and from the other major international fora listed above and in Annex D. Other actors described in Annex D are, at the same time, initiating programmes focused on allocating specific resources to ICT/development activities. These include:

- national development agencies such as the Canadian International Development Research Centre (IDRC) and the UK Department for International Development (DFID);
- national and international agencies such as the Netherlands-based International Institute for Communications and Development (IICD);
- and private sector businesses with extensive ICT interests such as Cisco and Hewlett Packard.

102. Programmes of this kind are focusing particularly on two main areas:

- initiatives for access development; and
- initiatives to support the development of policy and regulatory frameworks that will facilitate access to and effective usage of ICTs for development.

103. This focus appears derived from two broad assumptions:

- that the provision of public access to ICTs (for example through telecentres) is the most effective way of promoting social equity in ICT access and of maximising the social and economic development gains that may accrue;
- and that access is more likely to be made widespread and affordable through sector restructuring (in particular, through effectively regulated competition) than through other policy means.

ANNEX C Cont'd.

104. An example of this approach is the UK Department for International Development's programme 'Bridging the Digital Divide', to be launched formally in April 2001, which focuses on three specific points of intervention: the policy and regulatory agenda; the development of national/sectoral ICT strategies; and the development of community radio and related local communications facilities.

105. These initiatives set a framework for the current Commonwealth review. The Expert Group will wish to consider how a Commonwealth initiative should fit into the broad spread of other policy and practical initiatives that are underway.

106. Some Commonwealth organisations themselves have programmes which explicitly address ICTs, and these too are included in the data in Annex D. They can be divided into the following categories:

- A few Commonwealth agencies have substantial and substantially-funded programmes directly addressing ICT requirements in different ways. These include:
 - the Commonwealth Development Corporation (insofar as this is a Commonwealth body), which invests in communications enterprises in a number of Commonwealth (and other) countries;
 - the Commonwealth of Learning, which undertakes substantial distance learning programmes and related educational initiatives with funding from a variety of governments and development agencies;
 - the CTO (Commonwealth Telecommunications Organisation), which, *inter alia*, manages a substantial Programme for Development and Training sharing ICT expertise between developing countries, and works on policymaking and regulatory capacity-building with the UK Department for International Development and others;
 - and the Commonwealth Broadcasting Association, which also provides significant training and sharing of expertise between countries.
- A number of Commonwealth agencies have specific ICT agendas, particularly in policy areas, and also undertake project or programme activity. These include:
 - COMNET-IT (the Commonwealth Network of Information Technology for Development);
 - and the newly-established Commonwealth Centre for Electronic Governance.
- Several Commonwealth agencies have substantial ICT-related initiatives addressing their specialist sectoral concerns, for example:
 - the Commonwealth Business Council, which takes a particular interest in investment and in electronic commerce;
 - and the Commonwealth Institute, which has established an Internet portal for the Commonwealth (e-Commonwealth)

107. The Secretariat itself also has activities and responsibilities in all of these categories.

ANNEX C Cont'd.

108. As part of the research for this report, the CTO issued a questionnaire to all Commonwealth agencies inviting them to provide information on their ICT-related activities. Responses to this questionnaire are still being received and they will enable a full map of Commonwealth ICT-related activities to be provided in due course. A summary of such activities identified in responses received to date is included with other Commonwealth material in Annex D.

109. Almost all responses received to date indicate that Commonwealth agencies regard ICTs as increasingly important for their work. Most use electronic mail for communications, and many have World Wide Websites, but several cited resource constraints on the development of their use of ICTs together with the restrictions imposed by limited access to the Internet on the part of their constituencies in some Commonwealth countries.

110. The CTO will provide a fuller map of Commonwealth activities in ICT-related areas after receipt of further responses to the questionnaire cited above. The Expert Group will wish to consider how to build on the experience of the more substantial existing Commonwealth initiatives and address the difficulties faced by other agencies in maximising the contribution ICTs make to their work.

111. The Annexes to the CTO Report are:

- **Annex A: Commonwealth Country ICT Profiles**
- **Annex B: Commonwealth Country - Statistical ICT Profiles**
- **Annex C: Commitments of Commonwealth Countries to the World Trade Organisation (Agreement on Telecommunications Services)**
- **Annex D: International DOT Initiatives**
- **Annex E: Government Views on ICT Development**

KEY PRIORITIES FOR GOVERNMENT ICT POLICY AND COMMONWEALTH

Country	Country Key Priorities for ICT	Commonwealth ICT Key Priorities
Anguilla	<ul style="list-style-type: none"> • Liberalise telecom market. • Increase broadband access. • Training • E-government applications 	<ul style="list-style-type: none"> • Liberalisation of telecom • Training • Technology transfer
Australia	<ul style="list-style-type: none"> • Digital Divide • Impl. Gov. Innovation Action Plan • Forward agenda items of Action Plan • Impl. Government Online Strategy • Protect National Information Infrastructure • Ensure secure transactions 	<ul style="list-style-type: none"> • Promote open markets • Facilitate policy dialogue • Assist member nations in management of structural adjustment
Bangladesh	<ul style="list-style-type: none"> • Develop human resources • Develop infrastructure • Frame legal issues • Increase IT awareness • Develop private sector 	<ul style="list-style-type: none"> • Human resource development • Information infrastructure • Regional co-operation <p>Formation of group to monitor IT and suggest measures for Least Developed Countries</p>
Barbados	<ul style="list-style-type: none"> • Increase investment in ICT • Increase employment • Growth in local enterprises (SME) and services • Increase penetration of telecoms services; Telecentres • Create strong information industry and IT industry 	<ul style="list-style-type: none"> • Digital divide • highly skilled ICT workers • Increase employment • ICT Sector for sectoral sustainable human development applications.
Botswana	<ul style="list-style-type: none"> • Accelerate ICT services and networks. • Diversification of supply of new technologies, radio. • Raise awareness, improve skills. • Participation of the private sector. • Access to rural communities. 	<ul style="list-style-type: none"> • Skills in ICTs. • Expand network and services. • Policy, legal and regulatory provisions • Encourage R&D in ICT.

ANNEX D Cont'd.

Country	Country Key Priorities for ICT	Commonwealth ICT Key Priorities
Brunei Darussalam	<ul style="list-style-type: none"> • Gov. network standardisation. • Industry diversification. • Literacy campaign. • Co-ordination. • Strategic planning and management. 	<ul style="list-style-type: none"> • Infrastructure deployment. • Application service provider. • Convergence and regulation. • Bridging digital divide. • Co-sharing on ASEAN charges.
Cayman Islands	<ul style="list-style-type: none"> • e-business and e-government • Reduce cost of int. telecom • Skilled ICT professionals • ICT infrastructure, public access • Improve computer literacy of general population 	<ul style="list-style-type: none"> • Educational programmes • Advice on legislative and regulatory matters • Technical assistance • Promotion and facilitation of information exchange
Kenya	<ul style="list-style-type: none"> • Competition through licensing • Universal access/service • Third mobile cellular operator • Review all market segments • Consider opening up the market 	<ul style="list-style-type: none"> • Build capacity and access • Funding or partnership Internet Access in educational institutions. • Government Interconnectivity • Commonwealth as part of Global Information society.
Kiribati	<ul style="list-style-type: none"> • Upgrading satellite facilities. • Upgrading telecom Act • Encourage competition. • Link scattered outer-islands. • Review on tariff and customer services 	<ul style="list-style-type: none"> • Affordable access for smallest LDCs. • Regulation mindful of vulnerabilities • Transfer of knowledge. • Environment considerations.
Malta	<ul style="list-style-type: none"> • Market liberalisation • Suitable regulatory framework • Create environment for ICT investment • E-government 	<ul style="list-style-type: none"> • Expedite implementation in developing countries • Sharing of developments • Generic framework on good practice • Distance learning • Free internet in schools

ANNEX D Cont'd.

Country	Country Key Priorities for ICT	Commonwealth ICT Key Priorities
Namibia	<ul style="list-style-type: none"> • Establish ICT policy • Enabling environment • Decentralisation to regional gov. • Telecom service at lowest cost • Liberalise telecom sector • Public and private partnership • Freedom of Information • Universal access • Develop ICT infrastructure • Develop ICT human resources 	<ul style="list-style-type: none"> • Human resource development • Infrastructure development • Restructure ICT sector • Co-operation
Nigeria	<ul style="list-style-type: none"> • Telephone within 5 km of communities • 5m fixed lines, 4m mobile lines • New equipment digital • Meet telecom service requirement • Regulatory authority 	<ul style="list-style-type: none"> • Manpower development T • R& D in ICT • Local manufacture of components • International co-operation
Samoa	<ul style="list-style-type: none"> • Training and education, distance learning. • Technology awareness. • Policy and regulatory framework. • Legislation framework to prevent negative impacts of ICT • Positive relations with private sector, NGOs and other stakeholders. 	<ul style="list-style-type: none"> • Policies for ICT. • Develop LDC country ICTs • Training and education opportunities for both genders. • Capacity building .
Seychelles	<ul style="list-style-type: none"> • Telephony with Internet at reasonable price • Internet access to the district level, into schools, libraries. • Distance learning and tele-machine • e-commerce in the tourism sector • ICT awareness and HR 	<ul style="list-style-type: none"> • HR training in ICT • Sharing information, resources • Assist in ICT development • Consultation for the liberalisation of ICT sectors

ANNEX D Cont'd.

Country	Country Key Priorities for ICT	Commonwealth ICT Key Priorities
Sierra Leone	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Train personnel. • Information through Internet for ICT education. • Funds for ICT training. • Funds to meet fast technological changes.
Singapore	<ul style="list-style-type: none"> • Infocom manpower • Infocom industry development • E-powering the people sector • Taking a lead in e-governance 	<ul style="list-style-type: none"> • Bridging the digital divide. • Increase infocom saviness. • Promote and develop infocom. • Policies and legislation
St Vincent & The Grenadines	<ul style="list-style-type: none"> • Liberalisation telecom sector • ICT skills training • Internet technologies • E-commerce development • Restructuring to benefit from ICT. 	<ul style="list-style-type: none"> • ICT training. • Enabling legislation. • Liberalisation telecom sector • Integration of ICT into all institutions.
The Bahamas	<ul style="list-style-type: none"> • Access at reasonable and affordable prices. • Develop e-literate population. • Regulatory and legal framework. • Security and privacy of networks. • Fully networked society. 	<ul style="list-style-type: none"> • Infrastructure development. • Human Resource dev. • Provide universal service. • Greater public awareness.
The Gambia	<ul style="list-style-type: none"> • Training • Legal and regulatory framework • Access at affordable prices 	<ul style="list-style-type: none"> • Training support • Equipment supplies computers, scanners, software, etc • Promote networking
Turks and Caicos Islands	<ul style="list-style-type: none"> • Liberalisation • Regulatory authority • Spectrum management • Technical training • Funding 	<ul style="list-style-type: none"> • NA

ANNEX D Cont'd.

Country	Country Key Priorities for ICT	Commonwealth ICT Key Priorities
Zambia	<ul style="list-style-type: none">• Expand telecom infrastructure.• Universal access at affordable prices.• Facilitate private investment• Ensure equitable access to technology and education.• Public awareness.	<ul style="list-style-type: none">• Digital divide• Regulatory framework for ICT.• Human resource development• Investment in ICT.

Note: CTO, 'Information and Communication Technologies in the Commonwealth, A report for the ICT Expert Group, March 2001, Annex E based on a survey of Commonwealth Governments.

ANNEX E

GLOBAL INITIATIVES TO BRIDGE THE DIGITAL DIVIDE

Organisation	Digital Divide Mandate
Africa Connection - www.africaconnection.org	Sponsored by the African Telecommunication Union, provides information in line with its aim of providing all Africans with access to information and communication services linking all African countries and enabling all Africans to be full members of the global information society by the year 2010.
Asia-Pacific Development Information Programme (APDIP) - www.apdip.net	This programme illustrates how Asia-Pacific countries are relying on the Internet and It for social and economic development. The web site provides news briefings, background information and information about recent developments in the region.
Association for Progressive Communications - www.apc.org	APC is the international Internet community for environment, human rights, development and peace. It seeks to ensure that ICT is used appropriately and effectively to provide a voice for the poor.
British Council - www.britishcouncil.org/index.htm	The Council aims to create partnerships between British and other cultures through the provision of services including information and knowledge management.
Canadian International Development Agency (CIDA) - www.acdi-cida.gc.ca/INDEX-E.HTM	CIDA is involved in a variety of initiatives in support of social development priorities and is actively seeking to mobilise investment in ICT, especially through public-private partnerships.
Canadian International Development Research Centre (IDRC) Acacia Programme, - www.idrc.ca/acacia	Acacia is an international programme to empower sub-Saharan communities with the ability to apply ICTs to their own social and economic development.
CISCO Networking Academy Program - www.cisco.com/warp/public/779/edu/academy/	This is a partnership between the Cisco systems, education, business, government and community organisations world-wide; training focuses on designing, building and maintaining computer networks through a variety of e-learning initiatives.
Department for International Development (DFID) UK - www.dfid.gov.uk	DFID's aim is to eliminate world poverty and promote sustainable development and its web site provides access to project results and practical information concerning the role of information and ICT in the development process.
Digital Partners - www.digitaldivide.org/home.html	Digital Partners is a US-based non-profit institute that seeks to catalyse investment in technology content and infrastructure needed by the poor and to create market incentives that allow digital commerce to empower the excluded through partnerships with entrepreneurs.
Dot force 'Digital Opportunity Task Force' - www.dotforce.org	The task force is composed of members from the public, private and not-for-project sectors including participants from developed and developing countries. The dot force is preparing a report with concrete recommendations on how the G-8 can contribute to creating digital opportunity for all and bridging the global digital divide
Hewlett-Packard World e-inclusion program - www.hp.com/e-inclusion	HP is involved in partnerships to bring the Internet and e-services to rural communities.
International Institute for Communication and Development - www.iicd.org	This Dutch organisation is working to empower people through ICT for development and focuses especially on smaller and low income countries to provide opportunities for learning and information sharing.
International Labour Organization (ILO) - www.ilo.org/	The 2001 World Employment Report focused on the changing work environment in the information economy and the effects of a widening digital divide. It looked particularly at the spatial distribution of employment and the role of ICT

ANNEX E Cont'd.

Organisation	Digital Divide Mandate
International Telecommunication Union (ITU) - www.itu.int/ti ; www.itu.int/ITU-D-TREG	The ITU offers a range of Indicator Reports which present analysis of trends and developments in the global telecommunication sector, backed by official statistics. The ITU's Development site offers information about regulations, legislation, regional and country profiles, and trends in telecommunication reforms.
Markle Foundation - www.markle.org/index.stm	The Markle foundation is contributing to the dot force by sponsoring an online working group discussion and is centrally concerned with realising the potential of communications media and IT to improve people's lives and by promoting the development of communication industries that address public needs.
Netaid.org – www.netaid.org	Netaid uses the Internet to empower people to take action on extreme poverty around the world.
OneWorld - www.oneworld.net/campaigns/digitaldivide/index.html	OneWorld offers information about the latest efforts to bridge the Digital Divide at its site focusing on capacity building, communication, globalisation, the Internet, knowledge and poverty.
Organisation for Economic Co-operation and Development (OECD) – www.oecd.org	OECD is undertaking research and convening dialogues with its member countries and many developing countries to understand where the digital divide is occurring and why, its effects in the longer and shorter term and the policy measures that may be effective in alleviating it.
Sangonet - www.sangonet.org.za	Southern Africa's non-profit Internet provider is a member of the Association for progressive communication which works in support of development and human rights to deliver relevant information through an integrated approach to networking and by building capacity in organisations through the use of ICT.
The Global Knowledge Partnership (GKP) - www.globalknowledge.org ; gkaims.globalknowledge.org	GKP involves public, private and civil society organisations in efforts to create partnerships in knowledge for development that will help to improve lives, reduce poverty and empower people. GKP helps to initiate the development of ICT applications that are tailored to and responsive to the needs of users in developing countries. GK-AIMS (The Global Knowledge Activity Information Management System) is a set of online tools which facilitate information sharing and provides information about the projects in which GKP partners are involved.
UN Educational, Cultural and Scientific Organization (UNESCO) - www.unesco.org/webworld/index.shtml	UNESCO's central concern is with information content and the development of global and local sources of digital materials. Its focus extends to print, radio, television and Internet-based media and its web site offers access to current and archived articles, an observatory on the information society and discussions about ethical issues.
United Nations Development Programme (UNDP) - www.sdn.undp.org/it4dev/	The UNDP's Information & Communications Technology initiatives offer insights into ICT strategy, and IT Observatory (documents, countries, contacts, success stories, services and partners) and a number of initiatives including the OpportunITy initiative and the Global e-readiness initiative.
United Nations Economic Commission for Africa - Bridging the Information Gap in Africa www.uneca.org/programmes_home.htm	The Development Information Services Division (DISD) has a 'Harnessing Information for Development' programme. The division aims to be the premier, integrated information service and resource centre for Africa, making quality information on African development globally available. It aims to assist member states to use ICT and to build national capacities in development information management for accelerated and sustainable development
USAID Leland Initiative - www.usaid.gov/regions/afr/leland	This initiative is a five year USD 15 m. US government effort to extend full Internet connectivity to 20 or more African countries. The goal is to improve connectivity, to increase access by Africans to people and information for sustainable development and to make African-produced information available world-wide.

ANNEX E Cont'd.

Organisation	Digital Divide Mandate
World Bank Development Gateway - www.development.gateway.org	The Gateway is being developed to help communities, organisations and individuals to build partnerships, share ideas and work together to reduce poverty. The provide offers information on a variety of topics and is linked to country gateways.
World Bank Global Development Learning Network - www.worldbank.org/gdln/	This Network is actively involved in mobilising resources to provide innovative education and training through the use of ICT in partnership with other organisations.
World Bank <i>infoDev</i> - www.infodev.org	This programme provides grants for the innovative use of ICT and is particularly active in assessing e-readiness, the development of country information gateways, and sponsors working papers on the development and implications of the use of ICT to reduce poverty.
World Intellectual Property Organization (WIPO) – ecommerce.wipo.int/index-eng.htm	WIPO is concerned with all aspects of intellectual property and especially with the growth of Electronic Commerce. WIPO's programme of work and activities are available and it is seeking to develop practical solutions to the challenges raised by e-commerce.

Source: G. Girardet, 'Organisations involved in bridging the Digital Divide', presentation to Commonwealth IT Expert Group, Cape Town, South Africa, 6 March 2001.

COMMONWEALTH AGENCIES WITH SIGNIFICANT ICT INITIATIVES – A SUMMARY LIST

Association of Commonwealth Universities (ACU), Michael Gibbons, Secretary-General, info@acu.ac.uk, www.acu.ac.uk, supports a Commonwealth Knowledge Network linking researchers and providing access to expertise and administers scholarships and fellowship programmes. ACU supports the Commonwealth Higher Education Management Services (CHEMS) which provides consultancy work and information about undergraduate and postgraduate training.

Commonwealth Broadcasting Association, www.cba.org.uk, links broadcasters and is actively seeking to assist journalists to acquire skills to use the new media technologies. In 2000 discussions between the Commonwealth Press Union and the Association focused on a proposal for a New Media Initiative (www.cba.org.uk/conference2000b.htm).

Commonwealth Business Network (COMBINET), Richard Gold, Director, Export & Industrial Development Division, email r.gold@commonwealth.int; Mohan Kaul, Director-General, Commonwealth Business Council, email m.kaul@commonwealth.int, www.combinet.org / www.combinet.net, promotes electronic commerce to facilitate business and links chambers of commerce providing Internet-related knowledge and skills.

Commonwealth Institute, David French, Director-General, email info@commonwealth.organisation.uk, www.commonwealth.organisation.uk, supports an 'e-commonwealth' web site to share news, information and knowledge, enables desktop conferencing, messaging, community network exchanges and a facility whereby e-commonwealth associates can promote themselves.

Commonwealth Network of Information Technology for Development (COMNET-IT), Henry D. Alamango, Executive Director, email: henry.d.alamango@magnet.mt, www.comnet.mt - supports institutional networking for the development of electronic networking and Internet-based facilities for knowledge transfer; the use of IT in the public service, and the development of national Informatics policies.

Commonwealth of Learning, Gajaraj Dhanarajan, Director General, www.col.org, - develops distance education curriculum materials, promotes collaboration in technical applications among educational and media organisations through studies of virtual education initiatives, the development of an information resource centre, the use of digital technologies including Internet and Web-based training and assisting in the design of programmes to improve capabilities in the use of ICT.

Commonwealth Partnership for Technology Management (CPTM), Mihaela Y Smith, Chief Executive, email smart.partnership@cptm.org, provides advisory services on technology management including the development of national visions for strategic development and creates a forum for 'Smart Partnership Dialogue' on management of the macro-economic environment especially in the light of the knowledge-driven economy.

Commonwealth Science Council: Commonwealth Knowledge Network, Ken Lum, Director, Science and Technology Division, email k.lum@commonwealth.int, supports and electronic platform to connect people and institutions to facilitate technology transfer, moderate discussions and mobilise human resources to solve development problems.

ANNEX F Cont'd.

Commonwealth Secretariat - Debt Recording and Management System, M. Malik, Economic and Legal Advisory Services Division, email m.malik@commonwealth.int developing a software package and training and technical support including new updated software.

Commonwealth Secretariat - Legal and Regulatory Frameworks and Standards, Dianne Stafford, Legal and Constitutional Affairs Division, email d.stafford@commonwealth.int - supports development of electronic commerce, trade and measures to combat computer-based crime.

Commonwealth Telecommunications Organisation (CTO), David Souter, Executive Director, email: info@cto.int; www.cto.int - supports telecommunication business development, understanding and competence in telecommunication regulation; and telecommunication and the Internet for development focusing on social and economic development and access to networks.

Commonwealth Youth Programme (CYP) and Centres, Jane Foster, Gender and Youth Affairs Division, Commonwealth Secretariat, email j.foster@commonwealth.int, training centres run jointly by CYP and partners in the private sector to provide activities focusing on the use of IT.